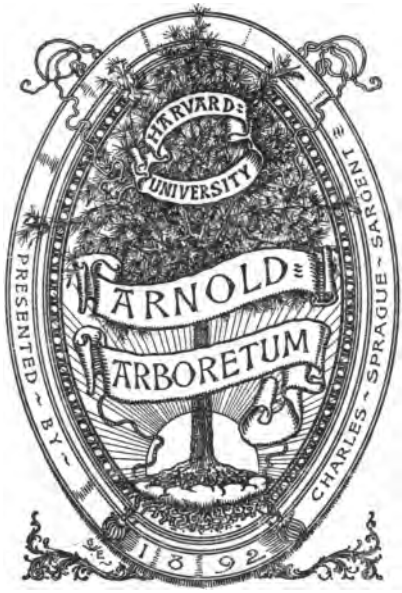

India

INTERNATIONAL FORESTRY EXHIBITION

EDINBURGH

1884.

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CATALOGUE

OF THE

INDIAN EXHIBIT

AT THE

International Forestry Exhibition
Edinburgh

J. Mitchell.

EDINBURGH
Printed at the University Press by
T. & A. CONSTABLE, PRINTERS TO HER MAJESTY
1884

THIS Catalogue is printed in order to give fuller details of the Collection shown in the Indian Section of the Edinburgh Forestry Exhibition than have been hitherto afforded in the published Catalogues.

It is arranged mainly in the form prescribed by the Executive Committee, viz., in numbered Collections or "Stands;" but the portion relating to the Northern Circle of the Madras Presidency, which arrived late, is reprinted at the end in its original form.

J. MICHAEL, COLONEL,
in charge of the Indian Section.

India

INTERNATIONAL FORESTRY EXHIBITION

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a₀

17 Deputy-Conservators, 3d grade.
17 Do. do. 4th do.
17 Assistant do. 1st do.
8 Do. do. 2d do.
9 Do. do. 3d do.
22 Sub-Assistant Conservators.
113 Rangers.
1 Deputy-Director of Forest School.
1 Professor of Physical Science at Forest School.
1 Deputy-Superintendent of Forest Surveys.
1 Superintendent of Working Plans.
} Rank as Deputy Conservators.

Note.—One Conservator or Deputy-Conservator acts as Assistant Comptroller-General (Forests).

B.

Under the Government of Madras.

1 Senior Conservator.
1 Junior do.
3 Deputy-Conservators, 1st grade.
3 Do. do. 2d do.
4 Do. do. 3d do.
4 Do. do. 4th do.
4 Assistant Conservators, 1st grade.
1 Do. do. 2d do.
3 Do. do. 3d do.
1 Sub-Assistant Conservator, 1st grade.
7 Do. do. 2d do.
44 Rangers.

C.

Under the Government of Bombay.

1 Conservator, 1st grade.
1 Do. 2d do.
1 Do. 3d do.
1 Deputy-Conservator, 1st grade.
2 Do. do. 2d do.
3 Do. do. 3d do.
13 Assistant Conservators, 1st grade.
1 Do. do. 2d do.
2 Do. do. 3d do.
3 Acting Officers.
2 Sub-Assistant Conservators, 1st grade.
3 Do. do. 2d do.
5 Do. do. 3d do.
3 Acting Officers.
26 Rangers.

The cost of these Establishments in salaries, travelling allowances, contingent expenses, etc., is £190,000 per annum.

The Forest Acts, originated by Brandis, arose out of the necessity of giving a legal status and legal authority to the new Department. There are at present three of these Acts, viz. No. VII. of 1878, which applies to India generally, including Bombay; No. XIX. of 1881, which applies to British Burmah only; and No. V. (Madras) of 1882, which applies to the Madras Presidency. They are all based on the same principle, and do not widely differ in details. Speaking broadly, they divide the forests of India under three select classes—Reserved Forests, Protected Forests, including Village Forests, and Forests which are private property.

The Reserved Forests are under the direct control of the Department, and are managed exclusively as a source of immediate and prospective profit, their limits being surveyed and demarcated, nomadic cultivation within them forbidden, destructive undergrowth cut out, the annual hot-weather fires guarded against, and the felling of timber strictly regulated. The Protected Forests are subject to less stringent supervision, and the people retain therein, subject to regulation, their hereditary rights of cultivation, pasturage, and wood-cutting; only certain kinds of timber being protected. Private Forests are controlled only to such an extent as is necessary to prevent their destruction. Besides these there are the State Plantations devoted to the cultivation of timber trees.

The area of the Reserved Forests of India is about 46,000 square miles. That of the Unreserved Forests has not yet been ascertained: while that of the Plantations under the Government of India and Madras alone is 41,000 acres. The area of the Plantations in Bombay is not known; but it is stated that the great problem of Indian Forestry, viz. the re-wooding of waste districts, has been grappled with in the Western Presidency with great vigour and success, by sowing broadcast the seeds of all sorts of forest trees and shrubs, the result of which action is now beginning to be seen in the appearance everywhere of "countless millions" of vigorous saplings. Extensive fuel reserves have also been provided, and are strictly preserved in all parts of India, to meet the extension of railway lines throughout the peninsula.

The net revenue derived from these operations, after deducting all charges for salaries and working expenses, now amounts to over £300,000. Prior to 1848 the revenue from the Indian forests was nominal, and there was no forest conservancy.* And this vast and beneficent change, which will gradually also reduce droughts and famines in India to a minimum, has been achieved in a single generation, or in the brief space of 35 years.

* Before 1848 the forest revenue, which was treated as a branch of the land revenue, was very trifling. In 1867-68 it amounted to £331,000. In 1881-82 it amounted to over £874,000; and as the total charges under all heads amounted to £557,000, the net forest revenue was exactly £317,000. It must, however, be borne in mind that, even from a financial point of view, the annual revenue which forest conservancy has as yet provided is utterly insignificant when compared with the capital value of the Indian forests redeemed by the British Government from certain destruction.

We have an illustration in Northern Afghanistan of how misgovernment may convert a once fertile and wealthy country, such as Afghanistan was under the commercial rule of the Buddhists, into an inhospitable desert, and all India, within the solstitial line, would probably have by this time been reduced to the same condition but for the English conquest of the Peninsula.

When, about ten years ago, Mr. Griffin W. Vyse was executive engineer at Dheera Ghazee Khan in the Punjab, he planted over a million timber trees along the frontier joining India to Afghanistan and Beloochistan, and scattered five tons of their seeds broadcast everywhere; and in 1877 at least fifty per cent. of these seeds had sprung up into flourishing young trees. Great zeal was also shown by Mr. C. E. Gladstone, who was an assistant commissioner in the Punjab at this time, in encouraging the planting of trees along the base of the Sulieman range. The Punjab Government have also formed a forest of trees several miles in extent at Chunga Munga, near Lahore; and the result of all this planting on our Indian north-west frontier is already being felt in the gradually increasing annual rainfall in the Southern Punjab, Southern Afghanistan, Northern Beloochistan, and Northern Scinde. When these results become more marked, and extend further into Afghanistan, the predatory character of the population of that country will probably become strongly modified; and should Russia adopt a wise system of forest conservancy in Turkestan, we may hope for the gradual restitution to Central Asia of the high prosperity it enjoyed before it yet fell under the withering edge of the sword of Islam.

The planting of trees has always been a highly honoured popular custom among the natives of India, and the Brahmins have a saying, wisely devised to encourage the practice, that "He who plants a tree lives long." We may therefore augur well, from the success of our Forest Department, for British rule in India.

It is a happy omen also that the first International Exhibition of Forestry should have been held in the stately capital of Scotland, where scientific forestry throughout the British Empire received its earliest impulse, and that the Exhibition should be so much indebted for its prosperous issue to the co-operation of Colonel Michael, the pioneer of practical forestry, and of Cleghorn, the father of scientific forestry, in India.

GEORGE BIRDWOOD.

June 18, 1884.

1.—'*The Index Collection' of Timbers, etc., sent by* GOVERNMENT OF INDIA, *through G. W. Strettell, Esq., Deputy-Conservator of Forests,* SUNDERBUNDS DIVISION.

PART I.—GUMS AND RESINS.

(4) Acacia arabica, (Indian Gum-Arabic).
(5) Acacia catechu, (Catechu, or Cutch).
(9) Acacia leucophlœa.
(12) A. Senegal.
(17) Ailanthus excelsa.
(21) Albizzia odoratissima.
(28) Anogeissus latifolia.
(34) Artocarpus chaplasha.
(79) Canarium strictum, (Black Dammar Tree).
(84) Cassia fistula, (Indian Laburnum).
(145) Ferula narthex.
(158) Garcinia morella, (Gamboge Tree).
(173) Hardwickia binata.
(183) Lac.
(199) Moringa pterygosperma, (Horse-Radish Tree).
(216) Pinus kasya, (Royle).
(239) Pterocarpus marsupium.
(245) Sapindus mukorossi.
(249) Semicarpus anacardium, (Marking-Nut Tree).
(255) Shorea robusta, (Sâl Tree)
(276) Terminalia arjuna.
(278) T. chebula.
(284) Urceola elastica.
(286) Vateria indica, (White Dammar of South India, or Indian Copal).
(296) Zizyphus rugosa.

PART II.—DYES, TANS, AND MORDANTS.

(3) Acacia arabica, (Indian Gum-Arabic Tree).
(3) Acacia arabica.
(4) Acacia catechu, (Catechu, Cutch).
(5) A. concinna, D.C.
(9) A. leucophlœa.
(12) Adhatoda vasica.
(20) Alnus Nepalensis, (Nepal Alder).
(24) Alpinia galanga, (Greater Galangale).
(25) Althæa officinalis, (Marsh Mallow).
(33) Areca catechu, (Areca, or Betel-Nut Palm).
(36) Artocarpus integrifolia, (Indian Jack Tree).
(37) A. lakoocha.
(47) Bauhinia purpurea.
(49) Berberis aristata, (Barberry).
(51) Bixa Orellana, (Arnotto Dye).
(58) Butea frondosa, (Bastard Teak or Bengal Kino).
(61) Cæsalpinia sappan, (Sappan Wood).
(67) Carthamus tinctorius, (Safflower).
(68) Cassia auriculata.

(69) C. fistula, (Indian Laburnum).
(70) C. tora, (Fœtid Cassia).
(73) Cedrela toona, (Indian Mahogany Tree).
(82) Coccus lacca, (Lac Dye).
(88) Curcuma aromatica, (Wild Turmeric, Yellow Zedoary, Cochin Turmeric).
(89) C. Longa, (The Turmeric).
(90) C. zedoaria, (Long and Round Zedoary).
(94) Cyperus pertenuis, (Mariscus Cyperus).
(109) Eugenia jambolana.
(127) Glycyrrhiza glabra, (Liquorice).
(134) Hedyotis capitellata.
(150) Lawsonia alba.
(156) Mangifera indica. (Mango Tree).
(160) Memecylon edule.
(161) Mesua ferrea.
(168) Morinda citrifolia, (Indian Mulberry).
(173) M. tinctoria.
(185) Nyctanthes arbor-tristis.
(188) Odina wodier.
(217) Punica granatum, (Pomegranate).
(220) Quercus infectoria, (Dyer's Oak, or Gall).
(221) Q. lamellosa.
(223) Randia dumetorum.
(224) Rheum emodi, (Rhubarb).
(229) Rubia cordifolia, (Indian Madder).
(237) Semecarpus anacardium, (Marking Nut).
(239) Soymida febrifuga, (Indian Red Wood).
(241) Strychnos nux vomica, (Snake Wood).
(243) Symplocos cratægoides.
(255) Tectona grandis, (Teak Tree).
(257) Terminalia arjuna.
(258) T. belerica.
(259) T. catappa.
(260) T. chebula.
(263) T. tomentosa.
(264) Thespesia populnea, (Tulip, or Portia Tree).
(266) Trigonella fœnum græcum
(268) Ventilago madrasapatana.
(276) Woodfordia floribunda.
(277) Wrightia tinctoria.

PART III.—FIBRES AND FIBRE-YIELDING PLANTS.

(12) Agave Americana, (American Aloe).
(16) Aloe vera.
(18) Ananassa sativa.
(27) Arenga saccharifera.
(44) Bauhinia Vahlii, W. & A.
(54) Borassus flabelliformis, (Palmyra Palm).
(56) Butea frondosa.
(57-*a*) Calamus rotang, (The Rattan Cane).
(60) Calotropis gigantea.
(63) Careya arborea.
(64) Caryota urens.
(69) Cocos nucifera, (Coir or Cocoa-nut Fibre).
(147) Corchorus olitorius, (see Jute).
(70) Cordia myxa.
(71) C. Rothii.
(74) Crotalaria juncea (Indian Hemp).
(76) Cyperus iria.
(105) Fourcroya gigantea and F. longœva.
(122) Grewia oppositifolia.
(125) Guazuma tomentosa, (Bastard Cedar).

(126) Hardwickia binata.
(129) Helicteres isora.
(132) Hibiscus cannabinus, (Hemp-leaved Hibiscus).
(133) H. esculentus, (Edible Hibiscus).
(139) H. tiliaceus.
(140) H. tricuspis.
(154) Kydia calycina.
(162) Malachra capitata.
(169) Melia azadirachta, (Margosa Tree).
(176) Musa paradisiaca, (Plantain).
(178) M. textilis, (Manilla Hemp).
(187) Pandanus odoratissimus, (Fragrant Screw Pine).
(195) Phœnix sylvestris, (Wild Date Palm).
(198) Pollinia eriopoda.
(210) Sanseviera zeylanica, (Bowstring Hemp).
(291) Urena sinuata.
(291-*b*) U. heterophylla.
(297) Yucca gloriosa, (Adam's Needle).

PART IV.—OILS AND SEEDS, PERFUMERY AND SOAPS.

(12) Amomum subulatum, (Greater Cardamom).
(14) Anacardium occidentale, (Cashew Nut)
(19) Andropogon muricatum.
(21) A. Schœnanthes, (Geranium Grass).
(25) Arachis hypogœa, (Ground Nut).
(27) Argemone Mexicana.
(47) Brassica campestris, var. 1, campestris, (Colza, Swedish Turnip, and Sarson).
(50) B. juncea, (Rai or Indian Mustard).
(52) Buchanania latifolia.
(69) Carthamus tinctorius, (Safflower).
(71) Carum copticum, (True Bishop's Weed).
(77) Cinnamomum zeylanicum, (True Cinnamon)
(92) Coriandrum sativum, (Coriander).
(186) Linum usitatissimum, (Linseed Flax).
(204) Mesua ferrea.
(269) Ricinus communis, (Castor-Oil Plant, or Palma Christi).
(283) Sesamum indicum, (Gingelly or Sesame Oil).

PART V.—MEDICINAL PRODUCTS.

(4) Abrus precatorius, (Indian or Wild Liquorice Root).
(26) Acorus calamus, (Sweet Flag).
(37) Ægle marmelos, (Bael Fruit).
(65) Allium cepa, (Onions).
(66) A. sativum (Garlic).
(70) Aloe vera, (Indian Aloe).
(87) Amarantus spinosus, (Prickly Amaranth).
(156) Asparagus sarmentosus.
(179) Bambusa arundinacea.
(180) Barleria cristata.
(205) Bixa orellana.
(208) Blumea lacera.
(216) Brassica campestris, (Colza, Swedish Turnip and Sarson).

(230) Butea frondosa, (Butea Gum and Bengal Kino).
(238) Cajanus indicus.
(246) Calotropis gigantea.
(255) Cannabis sativa, (Hemp).
(281) Carthamus tinctorus, (Safflower).
(282) Carum carui.
(285) Caryophyllus aromaticus, (Cloves).
(291) Cassia fistula.
(297) C. tora.
(303) Celastrus paniculatus.
(328) Cichorium intybus, (Wild or Indian Endive).
(338) Cinnamomum tamala.
(412) Cucumis melo.
(423) Curcuma longa, (Turmeric).
(426) C. zerumbet.
(448) Datura metel.
(451) Daucus carota, (Carrot).
(461) Dichroa febrifuga.
(467) Diospyros cordifolia.
(472) Dorema ammoniacum, (Eastern Giant Fennel).
(474) Dracontium polyphyllum.
(502) Erythrina Indica, (Indian Coral Tree).
(562) Fœniculum vulgare.
(582) Gentiana kurroo, (Himalayan Gentian).
(592) Glycyrhiza glabra, (Liquorice).
(604) Grewia asiatica.
(608) Gynocardia odorata, (Chaulmugra).
(639) Hygrophila spinosa.
(646) Ichnocarpus frutescens.
(651) Indigofera tinctoria, (Indigo).
(663) Ipomœa turpethum, (Turpeth Root).
(674) Jatropha curcas, (Physic Nut).
(690) Lactuca scariola, (Lettuce).
(695) Lallemantia royleana.
(703) Lawsonia alba.
(710) Limonia acidissima.
(713) Linum usitatissimum, (Linseed Flax).
(721) Luffa acutangula, (Gourd).
(736) Mallotus philippinensis, (Kamala, or Kamela).
(741) Mangifera indica, (Mango).
(741) Do. do.
(746) Matricaria chamomilla, (Wild Chamomile).
(752) Melia azadirachta, (Nim Tree).
(769) Michelia champaca.
(773) Mimusops elengi.
(783) Moringa pterygosperma, (Horse-Radish Tree).
(784) Morus indica.
(793) Myrica sapida.
(805) Nelumbium speciosum, (Pythagorean Bean, Lotus).
(810) Nerium odorum, (Sweet-scented Oleander).
(811) Nicotiana rustica, (Latakia Tobacco).
(816) Nyctanthes arbor-tristis.
(818) Nymphæa lotus.
(824) Odina Wodier.
(825) Oldenlandia corymbosa.
(831) Onosma echioides.
(835) Orchis mascula, (Salep).
(843) Oxalis corniculata, (Indian Sorrel).
(860) Pedalium murex.
(888) Picrorhiza kurroa.
(901) Piper longum.
(902) Piper nigrum, (Black Pepper).
(911) Pistia stratiotes.
(914) Plantago ispaghula, (Ispaghul).
(931) Pogostemon, (Patchouly)
(943) Pongamia glabra.
(970) Psidium Guava, (Guava Tree).

(971) Psoralea corylifolia.
(973) Pterocarpus santalinus, (Sander's Red, or the Red Sander's Tree, and sometimes called Red Sandalwood).
(978) Punica granatum, (Pomegranate).
(987) Randia dumetorum.
(1025) Rubia cordifolia, (Indian Madder).
(1037) Salix tetrasperma.
(1049) Santalum album, (White Sandalwood Tree).
(1050) Sapindus mukorossi, (Soap-nut Tree of North India).
(1072) Sesbania ægyptiaca.
(1073) S. grandiflora.
(1076) Shorea robusta, (Sal Tree).
(1078) Sida cordifolia.
(1097) Solanum melongena.
(1098) S. nigrum.
(1099) S. trilobatum.
(1108) Sphæranthus indicus.
(1123) Strychnos nux vomica.
(1124) S. potatorum.
(1133) Swertia chirata.
(1135) Symplocos racemosa.
(1139) Tamarindus indica, (Tamarind Tree).
(1147) Terminalia arjuna.
(1148) T. belerica.
(1149) T. catappa, (Indian Almond Tree).
(1150) T. chebula.
(1150) T. chebula.
(1151) T. tomentosa.
(1167) Tragia involucrata.
(1180) Trichosanthes dioica.
(1183) Trigonella fœnum græcum, (Fenugreek).
(1218) Viola serpens.
(1224) Vitex trifolia.
(1231) Withania somnifera.
(1233) Wrightia tinctoria.
(1238) Zanthoxylon alatum.
(1244) Zingiber officinale.
(1246) Zizyphus jujuba.

Part VII.—Timbers.

(2) Abies dumosa, (Indian Hemlock Spruce).
(3) A. Smithiana, (Himalayan Spruce).
(4) A. Webbiana, (Himalayan Silver Fir).
(5) Acacia arabica.
(6) A. catechu, (Cutch).
(7) A. dealbata, (Silver Wattle).
(8) A. eburnea.
(10) A. ferruginea.
(12) A. leucophlæa.
(13) A. melanoxylon, (Australian Black Wood).
(14) A. modesta.
(15) A. pennata.
(17) A. suma.
(18) A. sundra.
(20) Acer cœsium, (Maple).
(21) A. Campbellii.
(22) A. caudatum.
(25) A. oblongum.
(26) A. pictum.
(29) A. villosum.
(30) Acrocarpus fraxinifolius.
(32) Adenanthera pavonina, (Red Sandalwood).
(34) Adina cordifolia.
(35) A. sessilifolia.
(38) Ægle marmelos, (Bael, Fruit Tree).
(39) Æsculus indica, (Indian Horse-Chestnut).
(41) Afzelia bijuga.
(42) Ailanthus excelsa.
(43) A. Malabarica.
(44) Alangium Lamarckii.
(45) Albizzia amara.
(46) A. julibrissin, (Pink Siris).

(47) A. Lebbek, (Siris Tree).
(48) A. lucida.
(49) A. odoratissima.
(50) A. procera.
(51) A. stipulata.
(53) Alnus nepalensis, (Nepal Tree).
(54) A. nitida.
(55) Alseodaphne.
(56) Alstonia scholaris.
(58) Amoora cucullata.
(59) A. decandra.
(60) A. rohituka.
(61) A. spectabilis.
(65) Anogeissus acuminata.
(66) A. latifolia.
(69) A. squamosa, (Custard Apple).
(70) Anthocephalus cadamba.
(71) Antidesma bunias.
(74) A. menasu.
(76) Aquilaria agallocha, (Aloe Wood).
(76*a*) Araucaria Cunninghamii.
(79) A. involucrata.
(80) A. paniculata.
(81) Areca catechu, (Areca, or Betel Palm).
(84) Artemisia vulgaris, (Wormwood).
(85) Artocarpus chaplasha.
(86) A. hirsuta.
(87) A. incisa, (Bread-Fruit Tree of the South Sea Islands, cultivated in South India, Ceylon, and Burma).
(88) A. integrifolia, (Jak Fruit Tree).
(89) A. lakoocha.
(99) A. monophylla.
(100) Aucuba himalaica.
(102) Avicennia officinalis.
(103) Baccaurea sapida.
(120) Barringtonia acutangula.
(122) Bassia butyracea.
(123) B. latifolia.
(127) Bauhinia Malabarica.
(128) B. purpurea.
(129) B. racemosa.
(130) B. retusa.
(133) B. variegata.
(138) Beilschmiedia Roxburghiana.
(141) Berberis coriacea.
(144) B. vulgaris, (Barberry).
(146) Berrya Ammonilla, (Trincomali Wood).
(148) Betula bhojpattra.
(149) B. cylindrostachys.
(151) Bischoffia javanica.
(156) Bombax Malabaricum, (Silk Cotton Tree).
(157) Borassus flabelliformis, (Palmyra Palm).
(160) Brassaiopis.
(161) Brassaiopis speciosa.
(162) Briedelia montana.
(163) B. retusa.
(164) B. stipularis.
(165) B. tomentosa.
(167) Bruguiera gymnorhiza.
(169) Bucklandia populnea.
(171) Buddleia Colvillei.
(173) Bursera serrata.
(174) Butea frondosa.
(176) Buxus sempervirens, (Boxwood Tree).
(215) Calamus schizospathus.
(219) Callicarpa arborea.
(222) Calophyllum-inophyllum, (Alexandrian Laurel).
(225) Calophyllum tomentosum, (The Poon Spar Tree).
(226) C. Wightianum.
(227) Calotropis gigantea.
(228) Camellia drupifera.
(230) Canarium Bengalense.
(232) Capparis aphylla.
(233) C. grandis.
(236) C. olacifolia.
(238) Carallia integerrima.
(239) Carapa Moluccensis.

(240) Careya arborea.
(241) Carissa carandas.
(244) Carpinus viminea.
(245) Caryopteris Wallichiana.
(247) Casearia glomerata.
(248) C. graveolens.
(251) Cassia fistula, (Indian Laburnum).
(252) C. marginata.
(253) C. Siamea.
(258) Castanopsis rufescens.
(259) C. tribuloides.
(261) Casuarina equisetifolia, (Beefwood of Australia).
(262) Cedrela serrata.
(264) Cedrus deodara (Deodar, Himalayan Cedar).
(267) Celastrus paniculatus.
(270) Celtis australis.
(271) C. Caucasica.
(272) C. tetrandra.
(273) C. Wightii.
(279) Cerbera odollam.
(280) Ceriops Candolleana.
(283) Chickrassia tabularis, (Chittagong Wood).
(284) Chloroxylon Swietenia.
(290) Cinnamomum glanduliferum, (Nepal Camphor Wood).
(291) C. obtusifolium.
(292) C.pauciflorum.
(297) C. tamala, (Cassia Cinnamon).
(307) Clerodendron Colebrookianum.
(308) Cocculus laurifolius.
(309) Cochlospermum gossypium.
(310) Cocos nucifera, (Coir or Cocoa-nut Fibre, Porcupine Wood).
(314) Cordia fragrantissima.
(315) C. Macleodii.
(316) C. myxa.
(320) Cornus capitata.
(321) C. macrophylla.
(322) C. oblonga.
(323) Corylus Colurna.
(324) C. ferox.
(325) Corypha umbraculifera, (Talipat Palm).
(326) Cotoneaster acuminata.
(330) Cratæva religiosa.
(331) Cratoxylon neriifolium.
(332) Croton argyratus.
(334) C. oblongifolius.
(335) Cryptomeria japonica.
(336) Cupressus funebris, (Weeping Cypress).
(337) C. sempervirens.
(338) C. torulosa, (Himalayan Cypress).
(339) Cycas pectinata.
(340) Cynometra polyandra.
(341) C. ramiflora.
(345) Dalbergia lanceolaria.
(346) D. latifolia, (Blackwood or Rosewood of Southern India).
(349) D. sissoo, (Sissoo).
(350) D. stipulacea.
(354) Daphne papyracea.
(355) Daphnidium elongatum.
(356) D. pulcherrimum.
(358) Debregeasia leucophylla.
(359) D. longifolia.
(369) Derris robusta, (Dalbergia Krowee).
(372) Desmodium tiliæfolium.
(376) Dichopsis polyantha.
(379) Dillenia aurea.
(380) D. indica.
(381) D. pentagyna.
(385) Diospyros cordifolia.
(386) D. ebenum, (Ebony).
(387) D. ehretiodes.
(388) D. embryopteris.
(389) D. Kurzii, (Andamanese Marblewood).
(391) D. melanoxylon.
(392) D. montana.
(394) D. pyrrhocarpa, (Lya Burm).

(396) D. sp. (D. pilosa, Wall.).
(397) Dipterocarpus alatus.
(400) D. tuberculatus, (Eng Tree).
(407) Dolichandrone stipulata.
(409) Drimycarpus racemosus.
(411) Duabanga sonneratioides.
(412) Dysoxylum binectariferum.
(413) D. Hamiltonii.
(414) D. procerum.
(415) Echinocarpus dasycarpus.
(417) Ehretia lævis.
(419) E. wallichiana.
(422) Elæagnus umbellata.
(423) Elæocarpus lanceæfolius.
(424) E. robustus.
(429) Enkianthus himalaicus.
(435) Eriobotrya elliptica.
(438) Eriolæna Candollei.
(439) E. Hookeriana.
(440) E. spectabilis.
(445) Erythrina indica, (Indian Coral Tree).
(449) Erythroxylon monogynum, (Bastard Sandal).
(452) Eucalyptus globulus, (Blue Gum).
(453) Eugenia formosa.
(454) E. grandis.
(455) E. Heyneana.
(456) E. jambolana.
(458) E. Kurzii.
(459) E. Malaccensis.
(460) E. operculata, var. 1, operculata proper.
(462) Var. 3, obovata.
(463) E. sp.
(464) E. tetragona.
(468) Euonymus Hamiltoniana.
(478) Euphorbia tirucalli.
(479) Eurya acuminata.
(481) E. symplocina.
(482) Evodia fraxinifolia.
(486) Excæcaria baccata.
(489) E. sebifera, (Chinese Tallow Tree).
(490) Fagræa fragrans.
(493) Feronia elephantum, (Wood Apple).
(494) Ficus bengalensis, (Banyan Tree).
(495) F. comosa.
(496) F. cordifolia.
(497) F. cunia.
(498) F. elastica, (Indiarubber Tree).
(500) F. glomerata.
(501) F. hispida.
(502) F. infectoria.
(504) F. regia.
(505) F. religiosa, (Peepul).
(506) F. retusa.
(507) F. Roxburghii.
(509) F. virgata.
(513) Fraxinus floribunda.
(516) Garcinia cowa.
(523) G. speciosa.
(524) G. stipulata.
(529) Gardenia gummifera
(530) G. latifolia.
(532) G. obtusifolia.
(533) G. turgida.
(534) Garuga pinnata.
(538) Givotia rottleriformis.
(540) Gluta Tavoyana.
(541) G. Travancorica.
(543) Gmelina arborea.
(549) Grewia multiflora.
(550) G. oppositifolia.
(556) G. tiliæfolia.
(557) G. vestita.
(558) Guazuma tomentosa, (Bastard Cedar).
(561) Gynocardia odorata.
(562) Gyrocarpus Jacquini.
(563) Hæmatoxylon campechianum, (Logwood).
(564) Hardwickia binata.
(565) H. pinnata.
(567) Helicia robusta.
(571) Heptapleurum elatum.

(572) H. impressum.
(573) H. venulosum.
(574) Heritiera littoralis.
(575) H. papilio.
(576) Heterophragma adenophylla.
(579) Hibiscus macrophyllus.
(581) Hippophae rhamnoides.
(583) Holarrhena antidysenterica.
(585) Holigarna longifolia.
(586) Homalium tomentosum.
(588) Homonoya symphylliæfolia.
(589) Hopea odorata.
(591) H. parviflora.
(592) Hydrangea robusta.
(594) Hymenodictyon excelsum.
(595) H. thyrsiflorum.
(598) Ilex insignis.
(599) I. theæfolia.
(603) Indigofera stachyoides.
(611) Juglans regia, (Walnut).
(613) Juniperus excelsa, (Himalayan Pencil Cedar).
(614) J. recurva, (Weeping Blue Juniper).
(616) Kandelia Rheedii.
(622) Lagerströmia reginæ.
(623) L. hypoleuca.
(624) L. lanceolata.
(625) L. microcarpa.
(626) L. parviflora.
(627) L. tomentosa.
(630) Lebedieropsis orbicularis.
(641) Limonia acidissima.
(647) Litsæa Zeylanica.
(654) Lophopetalum Wallichii.
(655) Litsæa Wightianum.
(660) Maba buxifolia.
(661) Macaranga denticulata.
(663) M. indica.
(665) Machilus odoratissima.
(667) Macropanax undulatum.
(669) M. montana.
(671) Magnolia Campbellii, (Red Magnolia).
(672) Mallotus albus.
(674) M. oreophilus.
(677) Mangifera caloneura.
(678) M. indica (Mango Tree).
(679) M. sylvatica.
(682) Melaleuca leucadendron.
(683) M. rotundifolia.
(684) Melanorrhæa usitata, (Varnish Tree of Burma).
(687) Melia azadirachta, (Neem Tree, or Margosa Tree).
(688) M. azederach, (Bead Tree).
(689) M. dubia.
(690) M. sempervirens.
(691) Meliosma dilleniæfolia.
(692) M. simplicifolia (Millingtonia).
(693) M. Wallichii.
(700) Mesua ferrea.
(703) Michelia champaca.
(704) M. excelsa (White Magnolia).
(705) M. lanuginosa.
(706) M. oblonga.
(707) Micromelum pubescens.
(708) Microtropis discolor.
(709) Miliusa Roxburghiana.
(710) M. velutina.
(714) Mimosa rubicaulis.
(715) Mimusops elengi.
(716) M. indica.
(721) Morinda exserta.
(724) Morus cuspidata, (Mulberry).
(725) M. indica.
(728) Murraya exotica.
(730) Myrica sapida.
(736) M. semiserrata.
(739) Nephelium Litchi, (Litchi).
(740) N. Longana, (Longan).
(742) Nyctanthes arbor tristis.
(743) Nyssa sessiliflora.

(745) Ochna squarrosa.
(746) O. Wallichii.
(747) Odina Wodier.
(748) Olax scandens.
(749) Olea ferruginea.
(750) O. glandulifera.
(752) Oroxylum indicum.
(756) Ougeinia dalbergioides.
(763) Pandanus furcatus.
(770) Pentapyxis stipulata.
(773) Phlogacanthus thyrsiflorus.
(775) Phœbe lanceolata.
(777) Phœnix sylvestris, (Wild Date Palm).
(779) Phyllanthus Emblica.
(785) Pieris ovalifolia.
(786) Pinus excelsa.
(788) P. Khasya.
(789) Pinus longifolia, (Long-leaved Pine).
(793) Pistacia integerrima.
(794) Pithecolobium dulce.
(796) Planchonia littoralis.
(797) Platanus orientalis, (Oriental Plane Tree).
(804) Plectronia didyma.
(805) Podocarpus bracteata.
(808) Poinciana regia, (Mascarene).
(811) Polyalthia suberosa.
(814) Pongamia glabra.
(815) Populus balsamifera.
(816) P. ciliata.
(817) P. euphratica.
(820) Premna latifolia.
(821) P. longifolia.
(823) P. tomentosa.
(827) Prosopis spicigera.
(832) Prunus Padus.
(833) P. puddum.
(837) Psidium guava, (Guava Tree).
(838) Pterocarpus indicus, (Andaman Redwood).
(839) P. Marsupium.
(841) Pterospermum acerifolium.
(844) P. suberifolium.
(845) Punica granatum, (Pomegranate).
(846) Putranjiva Roxburghii.
(848) Pyrularia edulis.
(850) Pyrus foliolosa.
(852) P. Pashia.
(853) P. rhamnoides.
(856) Quercus acuminata.
(857) Q. annulata.
(858) Q. dilatata.
(859) Q. fenestrata.
(861) Q. Ilex, (Holm Oak).
(862) Q. incana, (Grey Oak).
(863) Q. lamellosa.
(864) Q. lanceæfolia.
(866) Q. lappacea.
(867) Q. pachyphylla.
(868) Q. semecarpifolia.
(869) Q. serrata.
(870) Q. spicata.
(871) Randia dumetorum.
(872) R. tetrasperma.
(873) R. uliginosa.
(874) Reptonia buxifolia.
(877) Rhamnus triquetrus.
(879) Rhizophora mucronata, (The Mangrove).
(881) Rhododendron argenteum.
(883) R. campanulatum.
(884) R. cinnabarinum.
(885) R. Falconeri.
(886) R. fulgens.
(887) Rhus cotinus.
(891) R. semialata.
(895) Ricinus communis, (Castor-Oil Plant).
(899) Rosa sericea.
(905) Saccopetalum tomentosum.
(909) Salix daphnoides.
(910) S. elegans.
(911) S. fragilis.
(913) S. tetrasperma.
(916) Salvadora oleoides.
(917) S. persica, (Tooth-Brush Tree).

(922) Sandoricum indicum.
(925) Sapindus detergens, (Soap-nut of North India).
(926) S. emarginatus, (Soap-nut Tree).
(929) Sarcosperma arborea.
(934) Schima Wallichii.
(935) Schleichera trijuga.
(936) Schrebera Swietenioides,
(940) Semecarpus anacardium. (Marking Nut Tree).
(941) Sesbania ægyptiaca.
(942) S. grandiflora.
(944) Shorea obtusa.
(945) S. robusta, (Sal Tree).
(947) S. stellata.
(948) S. Talura.
(949) S. Tumbuggaia.
(951) Solanum verbascifolium.
(952) Sonneratia acida.
(953) S. apetala.
(958) Spondias mangifera, (Hog Plum).
(959) Sponia orientalis, (Indian Nettle Tree).
(962) Stephegyne parvifolia.
(963) S. sp. (Gamble).
(964) Sterculia coccinea.
(966) S. fœtida.
(967) S. urens.
(968) S. villosa.
(969) Stereospermum chelonoides.
(972) S. suaveolens.
(973) S. xylocarpum.
(975) Streblus asper.
(976) Strychnos nux vomica, (Snake Wood).
(977) S. potatorum, (Clearing Nut Tree).
(980) Swietenia mahagoni, (Mahogany Tree).
(988) Talauma Hodgsoni.
(990) Tamarindus indica, (Tamarind).
(991) Tamarix articulata.
(992) T. dioica.
(993) Taxus baccata, (Yew).
(994) Tecoma undulata.
(995) Tectona grandis, (Teak Tree).
(996) T. Hamiltoniana.
(997) Terminalia arjuna.
(998) T. belerica.
(999) T. bialata.
(1000) T. catappa, (Indian Almond).
(1001) T. chebula.
(1003) T. myriocarpa.
(1004) T. paniculata.
(1005) T. tomentosa.
(1007) Tetranthera angustifolia.
(1008) T. laurifolia.
(1013) Teucrium macrostachyum.
(1016) Thespesia populnea, (Tulip Tree).
(1018) Trewia nudiflora.
(1019) Turpinia Nepalensis.
(1021) Ulmus lanceæfolia.
(1023) U. Wallichiana.
(1025) Vateria Indica, (Piney Varnish, or Indian Copal Tree).
(1029) Viburnum coriaceum.
(1030) V. cotinifolium.
(1031) V. erubescens.
(1032) V. fœtens.
(1037) Vitex altissima.
(1038) V. leucoxylon.
(1040) V. pubescens.
(1041) Wallichia disticha.
(1044) Wendlandia exserta.
(1050) Wrightia tomentosa.
(1051) Xylia dolabriformis, (Ironwood Tree of Pegu).
(1054) Zanthoxylum alatum.
(1059) Zizyphus jujuba.

Cocoons and Silk Thread.

Name of Article.	Use.	Place whence received.
(1) Eria Cocoons, (brown),	Wild Silk.	Assam.
(2) Ditto, (yellow), . .	Do.	Do.
(3) Muga Cocoons, . .	Do.	Do.
(4) Muga Thread, . .	Do.	Do.
(5) Tasar Cocoons, (Bara),	Do.	Manbhum, Bengal.
(6) Ditto, (Ampatia), .	Do.	Do.
(7) Ditto, (Tira), . .	Do.	Do.
(8) Ditto, (Muga), . .	Do.	Do.
(9) Ditto, (Bagai), . .	Do.	Do.
(10) Tasar Thread, (Bara),	Do.	Do.
(11) Ditto, . . .	Do.	Bhagalpur, Bengal.
(12) Ditto, (Bagoi), . .	Do.	Manbhum.
(13) Ditto, (Ampatia), .	Do.	Do.
(14) Ditto, (Muga), . .	Do.	Do.
(15) Ditto, . . .	Do.	Cuttack.

Timber Slabs from the Andaman and Nicobar Islands.

(946) Shorea Siamensis.
(1005) Terminalia tomentosa.
(746) Ochna Wallichii.
(945) Shorea robusta.
(1035) Villebrunea frutescens.
(146) Berrya ammonilla.
(330) Cratœva religiosa.
(346) Dalbergia latifolia.
(710) Miliusa velutina.
(44) Alangium Lamarckii.
(921) Sambucus javanica.
(769) Pentace burmanica.
(996) Tectona Hamiltoniana.
(339) Cycas pectinata.
(511) Flacourtia Ramontchi.
(574) Heritiera littoralis.
(798) Plecospermum spinosum.
(156) Bombax malabaricum.
(907) Sageretia theezans.
(557) Grewia vestita.
(228) Camellia drupifera.
(49) Albizzia odoratissima.
(543) Gmelina arborea.
(489) Excæcaria sebifera.
(716) Mimusops indica.

Timbers used for Tea-Boxes.

(6) Acacia catechu.
(18) A. Sundra.
(27) Acer Campbellii.
(30) Acrocarpus fraxinifolius.
(34) Adina cordifolia.
(47) Albizzia lebbek.
(49) A. odoratissima.
(56) Alstonia scholaris.
(70) Anthocephalus cadamba.
(76*a*) Araucaria Cunninghamii.
(85) Artocarpus chaplasha.
(89) Terminalia belerica.
(122) Bassia butyracea.
(127) Bauhinia malabarica.
(148) Betula bhojpattra.
(151) Bischoffia javanica.
(156) Bombax malabaricum.
(174) Butea frondosa.
(223) Calophyllum polyanthum.
(230) Canarium bengalense.
(261) Casuarina equisetifolia.
(263) Cedrela toona.

(290) Cinnamomum glanduliferum.
(346) Dalbergia latifolia.
(349) D. sissoo.
(356) Daphnidium pulcherrimum.
(411) Duabanga sonneratioides.
(415) Echinocarpus dasycarpus.
(428) Engelhardtia spicata.
(444) Erythrina arborescens.
(456) Eugenia jambolana.
(509) Ficus virgata.
(534) Garuga pinnata.
(543) Gmelina arborea.
(586) Homalium tomentosum.
(626) Lagerstrœmia parviflora.
(665) Machilus odoratissima.
(704) Michelia excelsa.
(705) Michelia lanuginosa.
(726) Morus serrata.
(763) Pandanus furcatus.
(766) Parrotia jacquemontiana.
(774) Phœbe attenuata.
(816) Populus ciliata.
(829) Prunus armeniaca.
(833) P. puddum.
(846) Putranjiva Roxburghii.
(932) Saurauja nepalensis.
(934) Schima wallichii.
(935) Schleichera trijuga.
(945) Shorea robusta.
(953) Sonneratia apetala.
(963) Stephegyne sp.
(268) Sterculia villosa.
(998) Terminalia belerica.
(1005) T. tomentosa.
(1006) Tetrameles nudiflora.

Specimens of Bamboos.

1. Bambusa arundinacea, (107).
2. Do.
3. Do. affinis, (106).
4. Do.
5. Do. Brandisii, (109).
6. Do.
7. Do. nutans, (112).
8. Do.
9. Do. from Pegu, (Burma).
10. Bambusa nutans.
11. Do. Brandisii, (109).
12. Do. Tulda, (118).
13. Do.
14. Do.
15. Do.
16. Do.
17. Do. polymorpha, (115).
18. Do.

Specimens of Cane.

1. Calamus.
2. Do.
3. Reeds from Sunderbans, used for native pens.
4. Calamus latifolius.
5. Do. macracanthus.
6. Do. inermis, and other species.

2.—*Rhodes Morgan, Esq., District Forest Officer,* MALABAR.

PALGHAT FORESTS.—Class II.

Scientific and Vernacular Name.	Description and Quantity forwarded.	Section.
1. Lagerströmia microcarpa, (Benteak),	1 Plank	1 (*a*).
2. Dalbergia latifolia, (Itti),	2 Cylinders	1 (*a*).
3. Acacia sundra, (Karangali),	2 Do.	1 (*a*).
4. Pterocarpus marsupium, (Vengai),	1 Do.	1 (*a*).
5. Schleichera trijuga, (Puvam),	1 Do.	1 (*a*).
6. Bassia latifolia, (Kat Ilupa),	1 Do.	1 (*a*).
7. Melia azadirachta, (Malay Vempu),	1 Do.	1 (*a*).
7½. Hopea parviflora, (Irumbogam),	2 Do.	1 (*a*).
8. Cyperus corymbosus, (Pattu Pai),	1 Mat	7.
9. Calamus rotang, (Perambu),	4 Bundles of canes, etc.	10.
10. Beesha rheedii, (Woday Kutchi),	2 Bundles woday sticks	10.*
11. Eugenia jambolana, (Nâval),	1½ lbs. Bark	11.
12. Bassia latifolia, (Kât Ilupa),	1¼ ,, Do.	11.
13. Casuarina equisetifolia, (Chowk Marum),	1½ ,, Bark	11.
14. Odina wodier, (Amakaray),	3 ,, Do.	11.
15. Briedelia retusa, (Mulla Vengay),	4 ,, Do.	11.
16. Zizyphus jujuba, (Elandapazham),	3 ,, Do.	11.
17. Acacia arabica, (Karu Veylam),	1½ ,, Do.	11.
18. Terminalia bellerica, (Thani Kai),	3 ,, Fruits	11.
19. Terminalia chebula, (Kadukai),	2¼ ,, Do.	11.
20. Artocarpus integrifolia, (Pilavu),	Woodchips	12.
21. Curcuma aromatica, (Kasturi Manga),	3 lbs. Roots	12.
22. Morinda citrifolia, (Cumbli Putchi Marum),	1 ,, Bark	12.
23. Mallotus philippinensis, (Kumila Podie),	1 ,, Powder	12.
24. Cocos nucifera, (Thenna Maram),	1 ,, Fibre	14.
25. Corypha umbraculifera, (Kodapana),	1 ,, Do.	14.
26. Ficus religiosa, (Arasu),	2 ,, Bark	14.

* Malformed pieces, of which one is rooted at both ends.

Scientific and Vernacular Name.	Description and Quantity forwarded.	Section.
27. Borassus flabelliformis, (Panamarum), ...	1 lb. Fibre . .	14.
28. Calotropis gigantea, (Erukku),	¼ ,, Do. . .	14.
29. Thespesia populnea, (Pu-arasu),	1 ,, Bark . .	14.
30. Flowering specimens sent, (Valpa Nâr), . . .	1 ,, Fibre . .	14.
31. Sanseviera zeylanica, (Morâl),	¾ ,, Do. . .	14.
32. Melia azadirachta, (Veppam),	¾ ,, Bark . .	14.
33. Myristica malabarica, (Kât Jaddikai), ...	½ ,, Kino . .	16.
34. Canarium strictum, (Karapu Kongilium), . . .		
35. Areca catechu, (Kashu Katti),	1¾ ,, Gum resin .	16.
36. Garcinia pictoria, (Gambogee),	2 ,, Gum . .	16.
37. Piper nigrum, (Mulagu), .	1¼ ,, Seeds . .	18.
38. Randia dumetorum, (Madukary), ...	1 ,, Bark . .	18.
39. Moringa pterygosperma, (Muringa), ...	¼ ,, Do. . .	18.
40. Albizzia lebbek, (Vel Vagay),	2¼ ,, Seeds . .	21.
41. Pongamia glabra, (Oongoo), .	1¾ ,, Seeds . .	21.
42. Schleichera trijuga, (Puvam), .	3 ,, Do. . .	21.
43. Tamarindus indica, (Pali), .	4 ,, Do. . .	21.
44. Xylia dolabriformis, (Irul), .	1 ,, Do. . .	21.

Class X.

45. Cinnamonum species, (Karapa Thol), ...	1 Stick . .	Miscellaneous.*
46. Arboreal termites, sp. White Ants, (Chethal),	2 Nests . .	Miscellaneous.†

WYNAAD FORESTS.—Class II.

47. Caryota urens, (Erampana), .	1 Plank . . .	1 (*a*).
48. Semecarpus anacardium, (cheramkottay), ...	1 lb. Nuts . .	12.
49. Musa superba, (Mala Vâzhay),	1 ,, Fibre . .	14.
50. Musa ornata, (Kalu Vâzhay),	1 ,, Do. . .	14.
51. Beesha rheedii, (Woday), .	1 ,, Do. . .	14.
52. Bohmeria malabarica, (Maunali),	1 ,, Do. . .	14.

* With jessamine creeper round it. The bark has healed over the creeper, enclosing it.

† Can be utilised in the manufacture of *Papier Mâché ;* found on rocks and trees, often at a great height from the ground.

Scientific and Vernacular Name.	Description and Quantity forwarded.	Section.
53. Caryota urens, (Erampana), .	1 lb. Fibre . .	14.
54. Canarium strictum, (Karupu Kongilium), ...	1 „ Resin . .	16.
55. Vateria indica, (Vellay do.),	1 „ Do. . .	16.
56. Elettaria cardomomum (Elakai), ...	1 „ Seeds . .	18.
57. Aleurites mollucana (Nât Akrottie Kottay), . .	1 „ Nuts . .	21.
58. Dalbergia latifolia (Itti), .	1 „ Seeds . .	21.
59. Mimusops elengi (Magadam), .	1 „ Do. . .	21.

3.—*W. Coldstream, Esq., B.C.S.*

Paper Materials from the Himalayas, (Desmodium tiliæfolium).

4.—*Captain E. S. Wood, Conservator of Forests,* North-Western Provinces and Oudh. Oudh Circle.

Preparation from Sal bark. This article is not yet known to the trade, and its manufacture has only just commenced. In the Oudh Circle there are some 700 miles of Sal forest, and the bark has hitherto been wasted on account of the distance from the market.

The Sal is Shorea or Vatica robusta. The extract is obtained by cutting the bark in pieces and boiling it down in common earthen vessels. The process is exactly the same as in making "Catha" or Catechu, except that for Kutch or Catechu the heart wood of "Acacia catechu" is cut into chips and boiled. Samples have been sent to the analyst at the Forest School at Dehra, and he says that the sample contained double the quantity of Tannin that Catechu did.

5.—*Deputy-Conservator of Forests,* Ajmere.

Timbers.

1. Capparis aphylla, (Kair).
2. Acacia arabica, (Babul).
3. Acacia arabica.
4. Acacia arabica.
5. Acacia leucophlœa, (Arinja).
6. Albizzia lebbek, (Siris).
7. Albizzia lebbek, (Siris).
8. Ailanthus excelsa, (Araw).
9. Balanites ægyptiaca, (Hingota).
10. Boswellia thurifera, (Saber).
11. Celastrus senegalensis, (Kakaira).
12. Clerodendron phlomoides, (Urni).
13. Cordia myxa, (Lasora).
14. Cordia rothii, (Gondi).
15. Dalbergia sissoo, (Sissoo).
16. Ficus bengalensis, (Bar).

17. Ficus religiosa, (Pipal).
18. Moringa concanensis, (Sainjna).
19. Mangifera indica, (Am).
20. Melia indica, (Nim).
21. Millingtonia hortensis, (Nim, Chambeli).
22. Prosopis spicigera, (Khajra).
23. Phyllanthus reticulatus.
24. Salvadora persica, (Jal).
25. Tamarix articulata, (Farash).
26. Zizyphus jujuba, (Ber).
27. Anogeissus latifolia, (Golia, Dhaw).
28. Acacia rupestris, (Kumta).
29. Ægle marmelos, (Bel).
30. Anogeissus pendula, (Dhawkra).
31. Anogeissus acuminata, (Dhaw).
32. Albizzia odoratissima, (Kalia).
33. Acacia catechu, (Khair).
34. Acacia jacquemonti, (Baonli).
35. Do. do. do.
36. Adina cordifolia, (Haldu, Kaim).
37. Bauhinia racemosa, (Jinga).
38. Do. variegata, (Kachnar).
39. Bombax malabaricum, (Semla).
40. Briedelia retusa, (Lamkana).
41. Butea frondosa, (Chora).
42. Cassia fistula, (Kirmalia).
43. Cordia Macleodii, (Godela).
44. Cratæva religiosa, (Barana).
45. Dalbergia lanceolaria, (Passi).
46. Do. latifolia, (Shisham).
47. Do. sissoo, (Sissu).
48. Dichrostachys cinerea, (Kunloi).
49. Diospyros melanoxylon, (Timbra).
50. Eugenia jambolana, (Jaman).
51. Erythrina suberosa, (Gadichora).
52. Ficus cordifolia, (Paras, Pipal).
53. Do. glomerata, (Guber).
54. Gardenia turgida, (Karmba).
55. Gmelina arborea, (Sewan).
56. Grewia asiatica, (Phalsa).
57. Hymenodictyon excelsum, (Lunia).
58. Limonia acidissima, (Keiri).
59. Melia azedarach, (Bakain).
60. Mimusops indica, (Khirni).
61. Odina wodier, (Gol).
62. Phyllanthus emblica, (Aonla).
63. Pongámia glabra, (Karras).
64. Prosopis spicigera, (Khajra).
65. Psidium guava, (Jasphal).
66. Pterocarpus marsupium, (Bijasal).
67. Rhus Mysorensis, (Dasan).
68. Do. do. do.
69. Salix tetrasperma, (Bentra).
70. Sapindus emarginatus, (Aritha).
71. Schrebera swietenioides, (Mokha).
72. Stephegyne parvifolia, (Keim).
73. Sterculia urens, (Karr).
74. Stereospermum suaveolens, (Padal).
75. Tamarindus indica, (Imli).
76. Tecoma undulata, (Rohira).
77. Ulmus integrifolia, (Sirlia).
78. Wrightia tinctoria, (Khirni).
79. Do. tomentosa, (Khirna).
80. Zizyphus nummularia, (Jharbor).
81. Do. vulgaris, (Ber).
82. Bauhinia malabarica, (Khatol Jinga).
83. Cordia Myxa (Rayondi).
84. Mangifera indica, (Aur).
85. Morus alba, (Shatut).
86. Grewia tiliæfolia, (Dhamin).
87. Saccopetalum tomentosum, (Umbia).
88. Terminalia bellerica, (Bahera).
90. Grewia asiatica, (Dhamin).
91. Flacourtia sapida, (Kakeran).
92. Ehretia lævis, (Tambolia).
93. Hamiltonia suaveolens, (Atovan).
94. Vitex negundo, (Neger).

Cupressus torulosa.
Bassia latifolia, (Mohwa).
Mallotus philippinensis, (Sanduria).

6.—*A. J. Mein, Esq., Deputy-Conservator of Forests,* KAMRUP DIVISION, ASSAM.

1. Model of a Dug-out.
2. Set of Tools used in the preparation of the same.
3. Sections of young Teak poles from the Kulsi Plantation, Kamrup, Assam, Compartment of 1872, showing annual rings.
4. Specimens of young Teak trees attacked by the Borer Beetle.

LIST OF TOOLS USED IN THE PREPARATION OF A DUG-OUT (BOAT).

1. Chisel (Botali). No. in use 2. Price in India 8 annas, English 10d.; grooved; used for making holes.
2. Axe (Kuthar). In use 1. Price 1 rupee in India, English 1s. 8d.
3. Bent Axe (Bhaji Kuthar). In use 2. Price 2 rupees, English 3s. 4d. For digging out or hollowing the boat.
4. Small Adze (Kará dia Sans). In use 1. Price 1 rupee, English 1s. 8d.

   Ordinary Adze (Gá Katá Sans). In use 1. Price 1 rupee, English 1s. 8d.

   Bent Adze (Bhunji). Price 1 rupee, English 1s. 8d.

7.—*C. Fordyce, Esq., Assistant Conservator of Forests,* SIBSAGOR DIVISION, ASSAM.

Specimens of Indiarubber collected from Creepers growing in Forests in this District. Morinda tinctoria, called in Assam the Asaljos. A dye of inferior quality is extracted from the root bark. Sample sent.—Udal Rhea (Sterculia urens). The bark of this tree produces a very strong fibre, and the natives use it in the rough for cordage. Specimen sent.—Bon Rhea (Urtica acuminata). Used for making ropes, fishing-nets, etc. Very strong and flexible.—Sarsi Bark (Aquilaria agallocha). The bark of this was used by the Assamese in ancient times for their manuscripts. Nahor Seeds (Mesua ferrea). The oil expressed from these seeds is used for lighting purposes.—Dhuna (Canarium Bengalense). A gum generally collected from the roots of the tree, and used as incense.—Morhal (Vatica lancifolia).—Gives a resin called "Ghund," which is used for incense.

8.—*G. Mann, Esq., Conservator of Forests,* ASSAM.

SPECIMENS OF TOOLS USED IN THE FORESTS, ASSAM.

No. 3—Khasi Hoe (large)—is used in bringing hilly and dry land, after it has been lying fallow for a number of years, varying from twenty to thirty, under cultivation, by cutting large square pieces of sod from the surface of the ground (grass land), which are then piled up, and afterwards burned, the ashes being used for manuring the field. Such land is usually cultivated for three years, and then again allowed to lie fallow from twenty to thirty years. When used for the preparation of irrigated rice lands, similar large pieces of sod are cut with this hoe, but merely turned upside down. Besides this, the hoe is used for all other work in the way of cultivating land.

No. 4.—Khasi Hoe (small)—is used for subsequent cultivation, such as weeding and loosening earth, which is chiefly done by women.

No. 5. Dâo is the tool used by the aborigines of the Khasi and Jaintia Hills for cutting and converting wood. The carpenters use it as an adze, and even to plane wood. It is used by some for felling trees in preference to the axe.

No. 6. Axe, is principally used in felling large trees, and if required as an adze by carpenters, it is simply turned round with the broad side upwards.

No. 7. Khasi Hoe (wooden handle). This is the same as Exhibit No. 3, only more primitive, having a handle entirely of wood. All these iron tools are peculiar to the Khasi and Jaintia Hills, and manufactured out of iron smelted by the Aborigines of these hills in their own primitive way.

MODE OF PREPARING TURPENTINE AND RESIN FROM THE KHASI PINE. (Nos. 1 and 2.)

In the Bazar or markets of the Khasi Hills a very resinous wood is sold, which is used by the natives, as well as by Europeans, for kindling fires, and it is very handy for this purpose. This wood is produced artificially in Pinus Khasyana by cutting a hole into the lower part of the trunk of the tree, about one foot above the ground. This hole is usually 9 to 12 inches wide, 6 to 9 inches high, and 2 to 3 inches deep. After this hole has been cut, the bark and a little of the wood is removed from a strip about 12 inches wide, and 4 feet up the trunk, just above the hole, which causes the resinous sap to exude, and all the sapwood along the strip where the bark has been taken off, to become thoroughly saturated with resin within the next twelve months; and it is even said that the wood of the smaller branches in the crown becomes much more resinous in trees thus cut. It need hardly be stated that, of course, all the exposed surface of the hole and sapwood above it are always more or less covered

with solid resin. For the extraction of liquid turpentine oil from such wood, as mentioned above, the latter is cut into small pieces or chips, 2 to 5 inches long, and $\frac{1}{4}$ to $\frac{1}{2}$ an inch thick, and placed in layers crossways into an ordinary earthenware cooking-pot or vessel, measuring about 12 inches in diameter, and 7 inches high, until it is completely filled. After this has been done, the mouth of the vessel is closed by tying large smooth leaves (usually of Phrynium) over it. The vessel is then turned upside down, and so placed on a hearth cut out of the hill-side.

This hearth consists of a horizontal surface, about eighteen inches to two feet broad, and a vertical surface of about the same height, and varying in length according to requirements. Vertical holes are dug into the horizontal surface two or three inches less in diameter than the earthen vessels which are to be placed on them, and horizontal holes into the vertical surface, to meet the holes made from above. On the holes in the horizontal surface the vessels with the wood are placed, as already stated, upside down, and the holes in the vertical face of the hearth are cut to place some smaller vessels underneath each one of those containing wood, to receive the turpentine oil as it runs out of the pots above, through some holes made for the purpose, into the leaves with which the vessels holding the wood were closed. A gentle fire is then made on or above the vessels holding the wood, and the hot ashes or burning charcoal kept spread over and around the pots, to heat them, the consequence of which is that all the turpentine oil exudes from the wood, and drops through the holes made in the leaves into the smaller vessels placed underneath to receive it. The fire up above is kept up as long as there is any oil running out of the vessel. The pot in which the turpentine oil, now forwarded, was made contained $6\frac{1}{4}$ lbs. of wood, which yielded one pound of turpentine oil. The wood, after the turpentine had been extracted, weighed $3\frac{3}{4}$ lbs., so that $1\frac{1}{2}$ lbs. weight was lost, which must have been the water in the sapwood that had evaporated in the process, and a little waste of turpentine, such as adhered to the leaves with which the vessel had been closed. The resinous wood used for the preparation of turpentine oil, of which specimens are also forwarded, sells at present in Shillong at the rate of about 80 lbs. for the rupee; but it is also stated that sometimes it fetches half as much again if there is not plenty brought to the Bazar for sale.

9.—*C. Bagshawe, Esq., Deputy-Conservator of Forests,* GARHWAL DIVISION, KUMAUN, N. W. P.

Botanical and Indian Name.	Part sent.	Use for same.
1. Andropogon involutus, (Bábur),	Whole . .	Rope.
2. Saccharum Munja, (Munj), .	Outer sheath .	Do.
3. Bauhinia Vahl, (Maljan), .	Bark . . .	Do.
4. Sterculia villosa, (Udala), . .	Do. . . .	Do.
5. Zizyphus jujuba, (Ber), . .	Do. . . .	Tanning leather.
6. Do. xylopyra, (Katber), . .	Do. . . .	Do.
7. Garuga pinnata, (Katuwa), .	Do. . . .	Do.
8. Cassia fistula, (Amaltas), . .	Do. . . .	Do.
9. Terminalia chebula, (Har), .	Fruit in green state	Dyeing cloth, etc.
10. Do. do., (Har jangi),	Do. dry . .	Dyeing&medicine
11. Do. belerica, (Bahera), . .	Fruit . . .	Dyeing.
12. Phyllanthus emblica, (Aula), .	Do. . . .	Do.
13. Mallotus philippinensis, (Roli), .	Do. . . .	Do.
14. Symplocos crategoides, (Lodh), .	Do. . . .	Do.
15. Odina wodier, (Jhingan), . .	Gum on tree .	Medicine.
16. Do. do. do. . .	Commercial gum from ground . .	Do.
17. Shorea robusta, (Sal ral), . .	Gum . . .	Medicine, etc.
18. Moringa pterygosperma, (Sojna),	Do. . . .	Do.
19. Semecarpus anacardium, (Bilawa),	Do. . . .	Do.

10.—*Lieut.-Col. T. Cadell, V.C., Chief Commissioner* ANDAMAN AND NICOBAR ISLANDS.

1. Pterocarpus indicus, (Padowk).
2. Pterocarpus indicus, (Padowk).
3. Lagerströmia flos-reginæ, (Pymma).
4. Albizzia Lebbek, (Siris).
5. Terminalia bialata, (Chugalam).
6. Artocarpus Lakucha, (Lakuch).
7. Slab, 11 feet 4 in. long, 4 feet 10½ in. wide, and 3¾ in. thick, of Calophyllum inophyllum, (Poon).
8. Slab of Pterocarpus indicus.
9. Do. Terminalia bialata.
10. Three specimens of Albizzia Lebbek.
11. Three specimens of Diospyros Kurzii.
12. Mantelpiece made of Pterocarpus indicus and Diospyros Kurzii.
13. Table made of Terminalia bialata, Pterocarpus indicus, and Diospyros Kurzii.
14. Railway Carriage Door made of Pterocarpus indicus, Murraya exotica (Méké), and Terminalia bialata.

15. One pair of Carriage Wheels made of Pterocarpus indicus and Hopea odorata, (Thingan).
16. One pair of Carriage Wheels made of Pterocarpus indicus.
17. Machine-wrought Mouldings of Hopea odorata, Diospyros Kurzii, Pterocarpus indicus, Terminalia bialata, and Albizzia Lebbek.
18. Garjan Oil. The exudation from the wood of Dipterocarpus turbinatus.
19. Garjan Oil. The exudation from the wood of Dipterocarpus alatus, used for the cure of leprosy and other purposes.
20. Dammar. The exudation from the bark of Dipterocarpus Hasseltii.
21. Photographs framed in Pterocarpus indicus.

11. *Museum of Science and Art, Edinburgh.*

Model of Burmese Monastery, Teak Wood (Tectona Grandis), in glass case. Flower Stand of Black Wood, Dalbergia latifolia. Carved Door, Cedrus deodara.

12. *South Kensington Museum of Science and Art.*

Box and Cover, Carved Ebony, Bareilly. Wallet, Mendicant's, "Kutch-Kol." A half of the double Cocoa-nut, called "Cocoa de Mer," carved with flowers and two bands of Arabic inscriptions. Jewel Box, carved Sandalwood, Mysore. Envelope Box, carved Sandalwood, Madras. Walking-stick, carved Sandalwood, Mysore. Glove-box, carved Sandalwood, Ahmedabad. Work-box, Sandalwood and Inlaid Work, Bombay. Book Cover, Sandalwood and Inlaid Work, Bombay. Panel, Sandalwood, Ahmedabad. Box, Carved Ebony, Bombay. Tablet, Carved Black Wood, Type. Book Rack, Sandalwood. Wooden Chair. Flower Vases, Carved Wood, Ahmedabad.

13. *Colonel Henry Yule, C.B., R.E.*

Leaves of Raphia Palm, Zanzibar. (Rocs quills.)

14. *Thomas Wardle, Esq., Leek, Staffordshire.*

A complete collection of Dyes obtained from vegetable products in India, shown on silk and other fabrics.

15.—The Government of India.

BOOKS, REPORTS, AND OTHER PUBLICATIONS.

[Prepared by W. Schlich, Esq., Ph.D., Inspector-General of Forests to the Government of India.]

I.—BOTANY.

1. Forest Flora of North-West and Central India; a handbook of the indigenous trees and shrubs of those countries. Commenced by the late J. L. Stewart, M.D., Conservator of Forests, Punjab; continued and completed by D. Brandis, Ph.D., Inspector-General of Forests to the Government of India. With Illustrations. 1874.

2. Preliminary Report on the Forest and other Vegetation of Pegu. By S. Kurz, Curator of the Herbarium, Royal Botanical Garden, Calcutta. 1873.

3. Forest Flora of British Burma, in two volumes. By S. Kurz, Curator of the Herbarium, Royal Botanical Garden, Calcutta. 1877.

4. Flora Sylvatica for Southern India. By Major R. H. Beddome, Conservator of Forests. 1873.

5. Manual of Indian Timbers. By J. S. Gamble, M.A., F.L.S., Officiating Conservator of Forests, Bengal. 1881.

6. List of the Trees, Shrubs, and Large Climbers found in the Darjeeling District, Bengal. By J. S. Gamble, M.A., Assistant Conservator of Forests. 1877.

7. Report on the Vegetation of the Andaman Islands. By S. Kurz, Curator of the Herbarium, Royal Botanical Garden, Calcutta. 1870.

8. Treatise on the Flora of the Kuram Valley, etc., Afghanistan. By J. E. T. Aitchison, F.L.S., Surgeon-Major, Her Majesty's Bengal Army, in two parts. 1880 and 1881.

9. Report on Nilgiri Loranthaceous Parasitical Plants destructive to Exotic Forest and Fruit Trees. By G. Bidie, M.B., Surgeon-Major, Superintendent Government Central Museum, Madras. 1874.

10. List of the Forest Trees in Mysore and Coorg. By Captain G. J. van Someren, Conservator of Forests. 1879.

II.—FOREST LAW.

11. Memorandum on the Forest Legislation proposed for British India, other than the Presidencies of Madras and Bombay. By D. Brandis, Inspector-General of Forests to the Government of India. 1875.

12. The Indian Forest Act, 1878.

13. The Burmah Forest Act, 1881.

14. The Madras Forest Act, 1882.

15. Manual of Jurisprudence for Forest Officers. By B. H. Baden-Powell, B.C.S. 1882.

III.—FORESTRY AND FOREST MANAGEMENT GENERALLY.

Madras.

16. Memorandum on the Demarcation of the Public Forests in the Madras Presidency. By D. Brandis, Inspector-General of Forests to the Government of India. 1878.

17. Suggestions regarding Forest Administration in the Madras Presidency. By D. Brandis, F.R.S., C.I.E., Inspector-General of Forests to the Government of India. 1883.

18. Memorandum on the Conolly Teak Plantations at Nilambur, in Malabar. By A. MacGregor, M.C.S., late Collector of Malabar. 1877.

19. Report upon the Nilambur Teak Plantations, in Malabar. By Lieutenant-Colonel R. H. Beddome, Conservator of Forests. 1878.

20. Report on Measurements of the Growth of Australian Trees on the Nilgiris. By D. E. Hutchins, Deputy Conservator of Forests. 1883.

Bombay.

21. Report on the Forests in Sind. By D. Brandis, Inspector-General of Forests to the Government of India. 1869.

Bengal.

22. Suggestions regarding the Management of the Forests in the Jalpaiguri and Darjeeling Districts. By D. Brandis, F.R.S., C.I.E., Inspector-General of Forests to the Government of India. 1880.

Assam.

23. Suggestions regarding Forest Administration in Assam. By D. Brandis, F.R.S., C.I.E., Inspector-General of Forests to the Government of India. 1879.

North-Western Provinces and Oudh.

24. Preliminary Working-Plan of the Deoban Working Circle for the three years 1875-76 to 1877-78. By D. Brandis, F.R.S., Inspector-General of Forests to the Government of India. 1875.

25. Suggestions regarding the Management of the Forests included in the Forest School Circle, North-Western Provinces. By D. Brandis, F.R.S., C.I.E., Inspector-General of Forests to the Government of India. 1879.

26. Suggestions regarding the Working of the Trans-Sarda Forests, Kheri District, Oudh. By D. Brandis, Inspector-General of Forests to the Government of India. 1880.

27. Suggestions regarding Forest Administration in the North-Western Provinces and Oudh. By D. Brandis, F.R.S., C.I.E., Inspector-General of Forests to the Government of India, including a Joint-Report on the

Forests of the School Circle. By D. Brandis, Inspector-General of Forests to the Government of India, and W. Schlich, Ph.D., Conservator of Forests in the Punjab, Members of the Board of Inspection appointed by the Government of India. 1881.

PUNJAB.

28. Hints on Arboriculture in the Punjab. By B. Ribbentrop, Deputy Conservator of Forests, in charge of Plantation Division. 1874. In English and in Urdu.

29. Report upon the Deodar Forests of Bashahr, being the result of a joint examination of the Bashahr Forests. By D. Brandis, Ph.D., Inspector-General of Forests to the Government of India; J. L. Stewart, M.D., Officiating Conservator of Forests, Punjab; and Captain E. S. Wood, Officiating Conservator of Forests, Oudh. 1865.

30. Preliminary Working-Plan of the Sutlej Working Circle for the five years from 1875-6 to 1879-80, being a Joint-Report by D. Brandis, Inspector-General of Forests to the Government of India; Captain W. Stenhouse, Officiating Conservator of Forests, Punjab; Lieutenant-Colonel C. Batchelor, Deputy Conservator of Forests, Sutlej Division; and B. Ribbentrop, Deputy Conservator of Forests, Punjab. 1875.

31. Suggestions regarding the Management of the Leased Forests of Bashahr, in the Sutlej Valley. By D. Brandis, F.R.S., C.I.E., Inspector-General of Forests to the Government of India. 1881.

32. Plan of Operations for the Simla Municipal Forests for the five years 1877 to 1881. By H. C. Hill and F. d'A. Vincent, Assistant Conservators of Forests. 1876.

33. Reports on Forests and Fuel Plantations in the Punjab. By Dr. J. L. Stewart, Conservator of Forests, Punjab, and other Officers. 1868.

34. Working-Plan for the Bias Forests. By B. Ribbentrop, Deputy Conservator of Forests. 1871.

35. Suggestions regarding the Demarcation and Management of the Forests in Kulu, being a Joint-Report by D. Brandis, Inspector-General of Forests to the Government of India; B. H. Baden-Powell, B.C.S., Conservator of Forests, Punjab; and Lieutenant-Colonel W. Stenhouse, Deputy Conservator of Forests, Bias Division. 1876.

36. Suggestions regarding the Demarcation and Management of the Forests in Kulu. By W. Schlich, Ph.D., Officiating Inspector-General of Forests to the Government of India. 1882.

37. Working-Plan of the Kalatop Forest, in Chamba. By B. Ribbentrop, Deputy Conservator of Forests. 1873.

38. Working-Plan of the Van-Khara Circle of the Changa Manga Plantation. By B. Ribbentrop, Deputy Conservator of Forests. 1874.

AFGHANISTAN.

39. Report on the Forests of the Kuram Assigned District. By C. Bagshawe, Deputy Conservator of Forests. 1879.

Ajmere.

40. Suggestions regarding Forest Administration in Ajmere and Merwara. By D. Brandis, Inspector-General of Forests to the Government of India. 1879.

Central Provinces.

41. Suggestions regarding Forest Administration in the Central Provinces. By D. Brandis, F.R.S., Inspector-General of Forests to the Government of India. 1876.

42. Suggestions regarding Forest Administration in the Central Provinces. By W. Schlich, Ph.D., Inspector-General of Forests to the Government of India. 1883.

Hyderabad Assigned Districts.

43. Suggestions regarding Forest Administration in the Hyderabad Assigned Districts. By D. Brandis, F.R.S., Inspector-General of Forests to the Government of India. 1878.

44. Suggestions regarding Forest Administration in the Hyderabad Assigned Districts. By W. Schlich, Ph.D., Inspector-General of Forests to the Government of India. 1883.

British Burma.

45. Report on the Teak Forests of Pegu. By D. Brandis, Superintendent of Forests, Pegu. 1856.

46. Report on the Attaran Forests, in Tenasserim. By D. Brandis, Superintendent of Forests. 1860.

47. Report on the Iron-Wood Forests of Arakan. By W. Schlich, Deputy Conservator of Forests. 1869.

48. Working-Plan of the Forests in British Burma. By D. Brandis, Inspector-General of Forests to the Government of India. 1868.

49. Report on the Forest System of British Burma. By B. H. Baden-Powell, B.C.S., Officiating Inspector-General of Forests to the Government of India. 1874.

50. Suggestions regarding Forest Administration in British Burma. By D. Brandis, F.R.S., Inspector-General of Forests to the Government of India. 1876.

51. Suggestions regarding Forest Administration in British Burma. By D. Brandis, F.R.S., C.I.E., Inspector-General of Forests to the Government of India. 1881.

IV.—REVIEWS AND ANNUAL REPORTS.

52. Reviews of the Forest Administration in the several provinces under the Government of India :—

For the year 1870-71, by Lieutenant-Colonel G. F. Pearson, M.S.C., Officiating Inspector-General of Forests to the Government of India.

,, 1871-72, ,, Ditto ditto.

For the year 1872-73, by B. H. Baden-Powell, B.C.S., Officiating Inspector-General of Forests to the Government of India.
,, 1873-74, ,, D. Brandis, Inspector-General of Forests to the Government of India.
,, 1874-75, ,, Ditto ditto.
,, 1875-76, ,, Ditto ditto.
,, 1876-77, ,, Ditto ditto.
,, 1877-78, ,, Ditto ditto.
,, 1878-79, ,, Ditto ditto.
,, 1879-80, ,, Ditto ditto.
,, 1880-81, ,, W. Schlich, Ph.D., Officiating Inspector-General of Forests to the Government of India.
,, 1881-82, ,, Ditto Inspector-General of Forests to the Government of India.
,, 1882-83, ,, Ditto ditto.

53. Progress Report of Forest Administration in the Madras Presidency for the year 1882-83.

54. Progress Report of Forest Administration in the Bombay Presidency for the year 1882-83.

55. Progress Report of Forest Administration in Bengal for the year 1882-83.

56. Progress Report of Forest Administration in Assam for the year 1882-83.

57. Progress Report of Forest Administration in the North-Western Provinces and Oudh for the year 1882-83.

58. Progress Report of Forest Administration in the Punjab for the year 1882-83.

59. Progress Report of Forest Administration in Ajmere-Merwara for the year 1882-83.

60. Progress Report of Forest Administration in the Central Provinces for the year 1882-83.

61. Progress Report of Forest Administration in the Hyderabad Assigned Districts for the year 1882-83.

62. Progress Report of Forest Administration in British Burma for the year 1882-83.

63. Progress Report of Forest Administration in Coorg for the year 1882-83.

64. Progress Report of Forest Administration in Biluchistan for the year 1882-83.

65. Progress Report of the Forest Survey Branch for the year 1882-83.

V.—MISCELLANEOUS.

66. Memorandum on the Distribution of Forests in India. By D. Brandis, Ph.D., Inspector-General of Forests to the Government of India. 1872.

67. The Forests and Gardens of South India. By H. Cleghorn, M.D., F.L.S., Conservator of Forests. 1861.

68. Manual of the Land Revenue Systems and Land Tenures of

British India (primarily intended as a text-book for the use of Officers of the Forest Service). By B. H. Baden-Powell, B.C.S. 1882.

69. Vegetation and Country from Narkanda to Pangi, in the Punjab. By D. Brandis, Inspector-General of Forests to the Government of India. 1879.

70. The "Chos" of the Hoshiarpur District, Punjab. By B. H. Baden-Powell, Conservator of Forests. 1879.

71. Natural History and Biology of the Teak Tree. By N. A. Dalzell, M.A., F.R.S.E., Conservator of Forests. 1869.

72. Notes on Caoutchouc obtained from the *Chavannesia esculenta.* By G. W. Strettell, Deputy Conservator of Forests. 1874.

73. The *Ficus elastica* in Burma Proper; a Narrative of my Journey in search of it. By G. W. Strettell, Deputy Conservator of Forests. 1876.

74. Memorandum on Cardamom Cultivation in Coorg. By E. Ludlow, Assistant Conservator of Forests. 1869.

75. Report on Insects Destructive to Woods and Forests. By R. Thomson, Assistant Conservator of Forests. 1868.

76. Memorandum on the Establishment of a Factory for impregnating Pine Sleepers from the North-West Himalaya with Metallic Salts. By Dr. H. Warth, Collector of Inland Customs. 1878.

77. Notes on the Manufacture of Iron and the Future of the Charcoal-Iron Industry in India. By H. Warth, Central Forest School, Dehra Dún. 1881.

78. Memorandum on the Establishment of a Central Forest School. By D. Brandis, Inspector-General of Forests to the Government of India. 1877.

79. Report of the Proceedings of a Conference of Forest Officers held at Lahore in January 1872. By B. H. Baden-Powell, Conservator of Forests, and J. C. MacDonell, Assistant Conservator of Forests.

80. Report of the Proceedings of a Conference of Forest Officers held at Lahore in January 1873. By J. L. Stewart, M.D., Conservator of Forests; B. Ribbentrop, Deputy Conservator of Forests; and A. E. Wild, Assistant Conservator of Forests.

81. Report of the Proceedings of the Forest Conference held at Allahabad in January 1874. By B. H. Baden-Powell, B.C.S., and J. S. Gamble, B.A.

82. Report of the Proceedings of the Forest Conference held at Simla in October 1875. By D. Brandis, F.R.S., and A. Smythies, B.A.

83. Rules and Tables relating to Measurement of Timber. By Rai Kunyha Lall, Executive Engineer, Public Works Department. 1869.

84. Forest Department Code, 2d edition, 1881, with Addenda and Corrigenda Sheets issued up to date.

85. Pamphlet containing the Government of India's Orders on the Budget Estimates of the Forest Department for the year 1883-84.

86. List of Officers and Rangers in the Forest Department under the Government of India on the 1st January 1884.

16.—The Government of India.

MAPS.

[Prepared by Major F. Bailey, R.E., Superintendent of Forest Surveys.]

NORTH-WESTERN PROVINCES AND OUDH.

No. 1. Map of the North-Western Provinces and Oudh, scale 32 miles=1 inch. Compiled in the Office of the Surveyor-General of India; the Forest Reserves (coloured green) added by hand in the Office of Major F. Bailey, R.E., Superintendent of Forest Surveys. The areas on the 1st April 1883 were as follows:—

	Sq. Miles.		Acres.
Dehra Dún,	278	or	177,724
Saháranpur,	297		190,380
Jaunsár,	124		79,291
Tons,	77		49,516
Kumaun,	636		406,930
Garhwál,	444		284,039
Ganges,	204		130,559
Naini Tál,	36		22,937
Ránikhet,	66		42,054
Jhánsi,	38		23,613
Lalitpúr,	148		95,573
Oudh,	1,090		697,298
Total,	3,438		2,200,514

The forests of Jaunsár, Naini Tál, and Ránikhet consist principally of Deodar (*Cedrus Deodara*), Pines (*Pinus longifolia* and *excelsa*), Firs (*Abies Webbiana* and *Smithiana*), and Oaks (*Quercus semecarpifolia*, *dilatata*, and *incana*); while a large portion of those of Dehra Dún, Garhwál, Bijnor, Kumaun, Bareilly, Oudh, and Gorakhpúr are composed of Sál (*Shorea robusta*), with belts of Sissú (*Dalbergia Sissoo*), and Khair (*Acacia Catechu*), on low ground and along rivers. Besides these, there is a considerable extent of Bamboo forest (*Dendrocalamus strictus*) and mixed forest, in which Sein (*Terminalia tomentosa*), Dhaura (*Anogeissus latifolia*), Bakli (*Lagerströmia parviflora*), and Haldu (*Adina cordifolia*), are the principal trees. In Jhánsi and Lalitpúr, Teak (*Tectona grandis*) is found scattered in dry mixed forests, composed of a variety of trees.

No. 2. A portion of the North-Western Provinces, scale 8 miles= 1 inch. Compiled in the Office of the Superintendent of Forest Surveys, and showing the forest reserves in the districts of Jaunsár, Dehra Dún,

Garhwál, Bijnor, Kumaun, Naini Tál, Ránikhet, and Bareilly, comprising 2229 square miles, or 1,471,710 acres. The trees prevailing in these districts have been given under No. 1.

No. 3. Index map of the Dehra Dún and Siwálik Survey, scale 4 miles=1 inch. The Government forest reserves, amounting to 575 square miles, were surveyed by the Forest Survey Department under Major F. Bailey, R.E., the private lands being at the same time surveyed by the Imperial Survey Department. The sheets containing chiefly private lands were drawn by the latter Department, while those containing principally forests were drawn by the former.

Nos. 4, 5, 6, 7, 8. Map of Dehra Dún and the Siwáliks, prepared as above indicated.

Sheets IX., XIX., XXV., XXXIV., XXXV.—scale 4 inches=1 mile.

The forests consist principally of Sál, with Sissú and Khair on low ground and along the banks of rivers. There is also a considerable extent of Bamboo (*Dendrocalamus strictus*) forest and of mixed forest, consisting of a great variety of trees, among which *Terminalia tomentosa* and *Anogeissus latifolia* are the chief trees.

Nos. 9, 10, 11. Map of Dehra Dún and the Siwáliks, scale 1 inch= 1 mile, in 3 sheets. Compiled from the maps, on the scale of 4 inches= 1 mile, by the Imperial Survey Department.

Nos. 12, 13, 14. Map of the Deoban Working Circle, Pargána Jaunsár, District Dehra Dún, scale 4 inches=1 mile. Drawn by the Forest Survey Department. For details and description of the forest see the "Preliminary Working-Plan of the Deoban Working Circle for the three years from 1875-76 to 1877-78," by D. Brandis, Inspector-General of Forests.

No. 15. Deodar forests at Mundáli, Dháragád Valley, Jaunsár, scale 4 inches=1 mile. Drawn in the Office of the Superintendent of Forest Surveys to accompanying the Working-Plan by E. E. Fernandez, Superintendent of Working-Plans. The forest contains Deodar mixed with Firs and broad-leaved trees, and the timber is to be exported by the Dháragád stream.

No. 16. Sketch map of the Deoban Working Circle in Jaunsár, with roads partly surveyed by C. W. Palmer, formerly Sub-Assistant Conservator of Forests in the North-Western Provinces (now in British Burma). (See Nos. 12 to 14.)

No. 17. Forests of the School Circle, North-Western Provinces, scale 1 inch=8 miles. Drawn in the Office of the Superintendent of Forest Surveys to accompany "Suggestions regarding the Management of the Forests included in the Forest School Circle, North-Western Provinces," by D. Brandis, F.R.S., C.I.E., Inspector-General of Forests to the Government of India, 1879. The area of these forests is 496,911 acres.

No. 18. Index map of the Kumaun and Garhwál Forest Survey, scale 1 inch=8 miles. Drawn in the Office of the Superintendent of Forest Surveys.

No. 19. Chart of Triangulation of the Government forests in the Kumaun and Garhwál Districts, scale 1 inch=1 mile. Drawn in the

Office of the Superintendent of Forest Surveys, as a record of the triangulation and traversing done in connection with the survey of the Kumaun and Garhwál forests, on the scale of 4 inches=1 mile. (See Nos. 21 to 23.)

No. 20. Map of the Reserved and Protected forests in the Kumaun, Garhwál, and Tarái Districts of the Kumaun Division, scale 4 miles =1 inch. Drawn in the Office of the Superintendent of Forest Surveys to accompany "Suggestions regarding Forest Administration in the North-Western Provinces and Oudh," by D. Brandis, F.R.S., C.I.E., Inspector-General of Forests to the Government of India, 1881.

Nos. 21, 22, 23. Maps of the Districts of Kumaun and Garhwál, scale 4 inches=1 mile. Surveyed and drawn by the Forest Survey Department under Major Bailey.

Sheet No. XXVIII., containing parts of the Pátli Dún forests in Garhwál and of the Chilkia forest in Kumaun.

Sheet No. XXXIII., containing parts of the Chilkia and West Kotah forests in Kumaun.

Sheet No. LXVIII., containing part of the Chakata forest in Kumaun.

These tracts were at one time stocked with excellent high forest of Sál, but they have been greatly injured by indiscriminate cutting and by fires. There are, however, considerable areas stocked with young forest, which is now strictly protected against cutting and fires, and which promises to replace a portion of the old forest within from 50 to 100 years.

No. 24. Map of the Pátli Dún hill forests, scale 1 inch=2 miles. 1881. Reduced in the Office of the Superintendent of Forest Surveys from the map of the forests in Kumaun and Garhwál, on the scale of 4 inches= 1 mile, to accompany the Working-Plan of the Pátli Dún by E. P. Dansey, then Assistant Conservator of Forests.

No. 25. Sketch map showing Kotlia Road and Branches, Kumaun District, scale 2 inches=1 mile. Drawn in the Office of the Superintendent of Forest Surveys to accompany the Report referred to under No. 20.

No. 26. Map of the Gangotri Deodar forests, Tiri-Garhwál, scale 1 inch=1 mile. Drawn in the Office of the Superintendent of Forest Surveys to accompany a Report by W. Schlich, Ph.D., Inspector-General of Forests to the Government of India. 1884.

No. 27. Oudh Revenue Survey Sheet 41, scale 1 mile=1 inch. Surveyed and drawn by the Revenue Survey Department. The forest reserves are indicated by a green wash.

No. 28. Map of the reserved forests in the Kheri and Pilibht Districts, Oudh, scale 4 miles=1 inch.

No. 29. Map of the reserved forests in the Bahraich District, Oudh, scale 4 miles=1 inch.

Nos. 28 and 29 were drawn in the Office of the Superintendent of Forest Surveys from a map supplied by Captain E. S. Wood, Conservator of Forests, Oudh, to accompany the Report referred to under No. 20. The Oudh forests consist chiefly of Sál (*Shorea robusta*), with which are associated *Terminalia tomentosa*, *Lagerstrōmia parviflora*, *Anogeissus latifolia*, and a variety of other species. They contain a large proportion of

mature timber, and are worked at present under a system of cautious selection fellings, the annual out-turn being between 2000 and 3000 trees, yielding from 80,000 to 120,000 cubic feet. They have been divided into blocks and compartments by an excellent system of broad straight roads and rides, which facilitate protection, improvement, and the export of timber.

Nos. 30, 31, 32, 33. Plan and elevation of 1st, 2d, and 3d class rest-houses, standard pattern, Oudh Circle, scale 8 feet=1 inch; and detail of verandah tiles, scale 10 inches=1 inch. Drawn in the Office of the Superintendent of Forest Surveys from original drawings supplied by Captain E. S. Wood, Conservator of Forests, Oudh, to accompany the Report referred to under No. 20.

No. 34. Geological map of the Mussooree Municipality, with Landour and Rájpur, North-Western Provinces, scale 1 inch=1 mile. Drawn in the Office of the Superintendent of Forest Surveys from a sketch by H. Warth, D.S.N., Professor of Natural Sciences at the Forest School, Dehra Dún. 1884.

PUNJAB.

Nos. 35, 36, 37. Khanpúr Range, District Hazára, 1872, scale 2 inches=1 mile, in 3 sheets. Drawn by W. H. Reynolds, then Assistant Conservator of Forests, Punjab (now Deputy Superintendent of Forest Surveys). The forest boundaries were surveyed by him, the topographical details being taken from the maps of the Revenue Survey Department. The forest, containing 50 square miles, lies chiefly on low hills of indurated clays and sandstones, covered for the most part with scrub jungle useful for fuel, and consisting chiefly of Phulahi (*Acacia modesta*), Garna (*Carissa diffusa*), and Sanatta (*Dodonæa viscosa*).

Nos. 38, 39, 40. Dungagalli Range, District Hazára, scale 2 inches =1 mile, in 3 sheets. Drawn by the same Officer, and the survey and details prepared in the same manner. This range, consisting of 63 square miles, contains forests of *Pinus excelsa* nearly pure, as well as large extents of mixed forests, of which the most important trees are *Abies Webbiana*, *Quercus dilatata*, *Acer*, *Prunus*, and *Ulmus*.

No. 41. Municipal forests of Simla, 1876, scale 8 inches=1 mile. Original map surveyed and drawn by the Topographical Survey Department, the forests being added by H. C. Hill and F. d'A. Vincent, then Assistant Conservators of Forests. The forests, containing 2252 acres, consist chiefly of Deodar, Pines, Oak (*Quercus incana*), and Rhododendron (*R. arboreum*). For details and plan of working see "Working-Plan of the Simla Municipal Forests" by Messrs. Hill and Vincent.

No. 42. Map of the Kulu District, scale 4 miles=1 inch, showing proposed forest reserves. Drawn in the Office of the Superintendent of Forest Surveys from the Indian Atlas sheets and from a sketch by B. H. Baden-Powell, C.S., Conservator of Forests, Punjab, to accompany "Suggestions regarding the Demarcation and Management of the Forests in Kulu" by Messrs. Brandis and Baden-Powell and Lieutenant-Colonel Stenhouse, 1876.

No. 43. Map of a portion of the Changa-Manga Plantation near Lahore, 1871. Surveyed and drawn by W. H. Reynolds, then Assistant Conservator of Forests, Punjab (now Deputy Superintendent of Forest Surveys). The Changa-Manga Plantation originated in a desire to furnish a large supply of fuel to the railways and large stations in the Punjab. The earliest planting works began in 1866, and from that date to 1870 were chiefly experimental. Up to 1st April 1870, 2500 acres had been planted and sown by different methods. A more systematic method was then commenced, and the success of the plantation has since then been almost uniform. A working-plan was made in 1873 by B. Ribbentrop (now Conservator of Forests in the Punjab), providing both for the future working and the method of cultivation. It is intended to be worked on the method of "Coppice under Standards," with a rotation of ten years, a fixed number of standards per acre being reserved to pass through two or more rotations of coppice. There are two circles, aggregating 11,409 acres—No. 1 consisting of 7680 acres of Shisham (*Dalbergia Sissoo*), with a slight admixture of other species, and in some places an undergrowth of Mulberry; and No. 2 consisting of 3729 acres of Jhand (*Prosopis spicigera*) and Shisham. The plantation is irrigated by means of canal water.

CENTRAL PROVINCES.

Nos. 44, 45. The Jagmandal Forest Reserve, in 2 sheets; area 24,503 acres, consisting principally of Teak, with Bamboos and mixed forest.

No. 46. North Phen Reserve; area 6435 acres, consisting chiefly of Sál.

No. 47. Motinála Reserve; area 1658 acres, consisting chiefly of Sál.

No. 48. Chauarigogarh Reserve; area 1660 acres, containing chiefly Teak and mixed forest.

No. 49. Airi Forest Reserve; area 2150 acres, containing principally Teak.

No. 50. Kuilikapa Forest Reserve; area 6296 acres, containing chiefly Sál forest.

Nos. 44 to 50 are in the Mandla District.

Nos. 51, 52, 53, 54. Banjar Valley Reserve, in the Mandla and Balaghât Districts, in 4 sheets; area 49,724 acres, chiefly covered with Sál forest and Bamboo.

No. 55. Bareila Forest Reserve, Mandla District; area 7153 acres, containing chiefly Teak forest.

Nos. 56, 57, 58, 59. Topla Forest Reserve, Mandla District, in 4 sheets; area 45,506 acres, principally Sál.

No. 60. Pandratola Forest Reserve, in Balaghât District; area 4960 acres, chiefly Teak and Bamboos.

Nos. 61, 62, 63, 64. South Phen Forest Reserve, Mandla District; area 45,967 acres, chiefly Sál forest.

Nos. 44 to 64 are all on the scale of 4 inches=1 mile.

No. 65. North-Eastern Division, Central Provinces, Topographical Survey, scale 1 inch=1 mile; showing Airi Reserve (No. 49) and parts of Chaurigogarh (No. 48) and Jagmandal (No. 44) Reserves.

Nos. 44 to 65 were all surveyed and drawn by the Topographical Survey Department. For a detailed account of these forests see "Suggestions regarding Forest Administration in the Central Provinces," by D. Brandis, Inspector-General of Forests to the Government of India, 1876.

Forest administration in the Central Provinces is marked by the great success which has attended the efforts, commenced by Lieutenant-Colonel Pearson in 1864 and steadily continued by Major Doveton since 1868, for protecting the forests against the annual jungle fires. Close on one million acres of Reserved Forests in the Central Provinces are now permanently protected against fire.

BENGAL.

No. 66. Palamow Reserved Forests, in the Shahabad District of the Patna Division, scale 2 miles=1 inch. Surveyed by the Revenue Survey Department, the boundaries added by W. Johnstone, Assistant Conservator of Forests, and the map re-drawn in the Office of the Superintendent of Forest Surveys.

The forests consist chiefly of Sál (*Shorea robusta*), Khair (*Acacia Catechu*), and Dhauta (*Anogeissus latifolia*), with a number of other species and a considerable quantity of Bamboo. The area is 183½ square miles, or 117,313 acres.

No. 67. The Buxa Plain Reserve, in the Jalpaiguri District of the Rajshahye and Cooch Behar Division, scale 2 miles=1 inch. Surveyed by the Revenue Survey Department, the boundaries added by W. Johnstone, Assistant Conservator of Forests. The forest contains 144 square miles, or 92,160 acres, and consists chiefly of Sál (*Shorea robusta*) in large areas alternating with patches of savannah forest. Among other trees the most important is Chilauni (*Schima Wallichii*). There are also belts of mixed forest, with Toon (*Cedrela Toona*) and Chestnut, and of Khair (*Acacia Catechu*) and Sissú (*Dalbergia Sissoo*) forest, chiefly along the banks of water-courses. The forest has been divided into five blocks and twenty-six compartments, and is being worked on a preliminary working-plan framed for eight years by Dr. W. Schlich, then Conservator of Forests in Bengal. The annual yield for the first period is about 80,000 cubic feet of Sál and Sissú timber, besides other species and articles of minor produce.

Nos. 68, 69, 70. Western Dúars Main Circuits Nos. 5, 6, and 7, Bengal Revenue Survey, scale 1 mile=1 inch. The original map was made by the Revenue Survey Department, the forest boundaries being surveyed, demarcated, and entered by Messrs. Johnstone and Fuchs, Assistant Conservators of Forests, under the personal supervision of the then Conservator,

Dr. Schlich. These three sheets contain the forests of the Buxa Forest Division, comprising the following reserves :—

	Sq. Miles.		Acres.
Borojhar,	55	or	35,200
Buxa,	144		92,160
Raidak,	20		12,800
Dhampara,	11		7,040
Bholka,	20		12,800
Total,	250		160,000

The species found in these forests are similar to those of the Buxa Reserve above described.

No. 71. The Bamunpokri Forest Reserve, scale 8 inches=1 mile. Drawn by R. L. Heinig, Sub-Assistant Conservator of Forests in Bengal, to accompany the Working-Plan of the Bamunpokri Forests, by F. B. Manson, Assistant Conservator of Forests in Bengal.

ASSAM.

No. 72. Sidli Circle, Eastern Range, Goalpara (or Eastern Dúars) Division, scale 1 inch=1 mile, 1877. Surveyed on the basis of the Revenue Survey maps by Messrs. Fisher and D'Arcy, then Assistant Conservators of Forests. The forest consists chiefly of Sál (*Shorea robusta*), with Chilauni (*Schima Wallichii*) and a few Ajhar (*Lagerströmia Reginæ*), and here and there belts of evergreen forest along water-courses, the prevailing trees in which are *Vatica lanceæfolia* and *Artocarpus Chaplasha.* The forest has been divided into four blocks, and a careful valuation made.

No. 73. Charduar Caoutchouc Plantation, Block No. 1, scale 8 inches =1 mile. Surveyed by W. E. D'Arcy, then Assistant Conservator of Forests in Bengal, 1878, drawn to accompany the Forest Administration Report of Assam for 1877-78 by G. Mann, Conservator of Forests in Assam.

BERAR.

No. 74. Part of Párgana Melghát, Ellichpúr District, containing the Bairagarh Reserve.

This forest contains 425 square miles, or 272,049 acres. It is divided into forty blocks, containing bamboo and mixed forests, with a large proportion of teak.

Nos. 75, 76. Parts of the Districts of Ellichpúr and Akola, containing the Gugumál Reserve, two sheets. The area of this reserve is 180 square miles, or 115,200 acres, and it contains principally Bamboo and mixed forest, with a proportion of Teak and a large extent of Salei (*Boswellia thurifera*) forest.

No. 77. Part of the Bassim District, containing the Penganga Reserve. The area of this reserve is 18 square miles, or 11,575 acres, and it contains Teak and mixed forest, with a large area stocked with Salei (*Boswellia thurifera*).

No. 78. Part of the Bassim District, containing the Kinwat Reserve. The area of this reserve is 82 square miles, or 52,558 acres, and the principal trees are Teak, Bija Sâl (*Pterocarpus Marsupium*), and Salei (*Boswellia thurifera*).

These maps of the Berar forests, Nos. 74 to 78, were made by the Topographical Survey Department, the forest boundaries being entered by A. T. Drysdale, now Conservator in charge of the Berar Forests. Of the Berar Forests, about 973 square miles, or two-thirds of the entire demarcated area, are now regularly protected against the annual jungle fires of the hot season. These operations commenced in 1870.

No. 79. Index map of the Forest Survey of the Melghât Taluk, Berar, scale 1 inch=8 miles. Drawn in the Office of the Superintendent of Forest Surveys, in connection with the survey now in progress.

AJMERE.

Nos. 80, 81. Map of the District of Ajmere, scale 1 inch=1 mile; surveyed by the Topographical Survey Department.

Sheet No. 1, containing the following reserves :—

	Acres.
Nágpahár,	2,660
Mohwa Bir and Madar Hill,	2,812
Taragárh,	1,016
Sirinagar,	3,575
Total,	10,063

Sheet No. 2, containing the Rajosi Forest, 1260 acres.

Nos. 82, 83, 84. Map of the District of Merwára, scale 1 mile= 1 inch. Surveyed by the Topographical Survey Department. Three sheets, containing the following Reserved Forests :—

	Acres.
Biliawás,	3,172
Todgarh,	40,048
Dilwára and Cháng Bir,	235
Borwar and Kotra,	3,923
Cháng,	2,341
Sheopura,	1,920
Anspahar,	1,466
Total,	53,105

No. 85. Map of the Forests in the Ajmere and Merwára Districts, scale 1 inch=6 miles. Drawn in the Office of the Superintendent of Forest Surveys to accompany "Suggestions regarding Forest Administration in Ajmere and Merwára," by D. Brandis, F.R.S., C.I.E., Inspector-General of Forests to the Government of India, 1879.

The forest reserves in Ajmere and Merwára are denuded hills, scantily stocked with Dhaura (*Anogeissus latifolia* and *pendula*), Khair (*Acacia Catechu*), and Salei (*Boswellia thurifera*). These tracts are demarcated and are protected as an experiment, chiefly with the view of improving the water-supply of the tanks in a portion of the district, which are fed by the

streams coming from these hills. The agriculture of the Districts of Ajmere and Merwára is mainly dependent on the filling of these tanks and the irrigation obtained from them. The hills had become entirely denuded by continued grazing and fires, and the consequence has been that the rain-water rushes down without any check, overflows and breaks the bunds, so that the beds of the tanks become silted up. It is hoped that by the protection of these reserved areas the floods will to some extent be prevented, and the water-supply of the tanks regulated, so that a portion of the district may be restored to its former fertility. The area demarcated is as yet insignificant, but, if the experiment succeeds, it is hoped that it may be possible to demarcate and place under protection a larger area, and thus somewhat to improve the agriculture of this part of the country.

BRITISH BURMA.

No. 86. Sketch map showing Forest Reserves (sanctioned and proposed) in the Pegu and Tenasserim Divisions of British Burma, scale 1 inch=16 miles. Compiled and drawn in the Office of the Superintendent of Forest Surveys, from a map of the Teak Localities in British Burma, by D. Brandis, 1862, and from a sketch-map by the Conservators of the Pegu and Tenasserim Circles, to accompany "Suggestions regarding Forest Administration in British Burma," by D. Brandis, F.R.S., C.I.E., Inspector-General of Forests to the Government of India, 1881.

Nos. 87, 88. Map of the Tavoy River, showing the boundaries of a proposed State Reserve, in two sheets, scale 1 inch=1 mile. Drawn by T. H. Aplin, then Officiating Deputy Conservator of Forests in British Burma.

Nos. 89, 90, 91, 92. Parts of the Thayet, Prome, Henzáda, and Rangoon Districts, Pegu Division; sheets Nos. 1, 2, 3, and 4, scale 1 inch= 2 miles. Compiled and drawn in the Office of the Superintendent of Forest Surveys, by H. C. Hill, then Deputy Conservator of Forests in British Burma, and Native assistants, from manuscript forest maps and from Captain Edgcome's Township Maps of British Burma.

TRANS-FRONTIER.

No. 93. Portion of Kuram Valley, scale 1 inch=1 mile. Enlarged in the Office of the Superintendent of Forest Surveys from Captain (now Lieutenant-Colonel) Woodthorpe's maps of Kuram and Khost Valleys. scale 1 inch=4 miles, to accompany a Report on the Forests of the Kuram Assigned Districts, by C. Bagshawe, Deputy Conservator of Forests, on special duty with the Kuram Field Force, 1879.

SKELETON-MAPS AND BLUE PRINTS, ETC.

Nos. 94, 95, 96, 97, 98, 99, 100. As it was represented that the hill shading on the maps was heavy, and impeded their usefulness for forest purposes, the Superintendent of Forest Surveys had an experimental skeleton sheet drawn (No. 94), in which are shown not only the water-courses, roads, village sites, and such other items as are generally shown

in a skeleton sheet, but also the principal ridges and spurs. It did not, however, appear possible to limit the field work to the amount of detail shown in the skeleton map, because the amount actually required in each particular case was not known. Neither did it appear desirable to draw the fair sheets in skeleton only, partly for the same reason, and partly because such sheets would be useless for ordinary purposes and for incorporation with the maps drawn by the Surveyor-General's Department. It seemed, therefore, that work in the field must proceed as before, and that, if skeleton maps are required, they must be in addition to the shaded sheets. It was thought, however, that, if blue prints could be brought into use, Forest Officers would be in possession of maps which would be light enough to enable them readily to record information on them either by colour or in writing, while they would be in possession of all available detail without the additional expense of a second drawing and photozincographic process.

Nos. 95, 96, 97, 98, 99, 100, have been prepared with this object, and blue prints have been in use for some time past in the Office of the Superintendent of Working-Plans.

Notes on the System of Work adopted in the Forest Survey Department.

The following extracts from the Annual Progress Reports of the Superintendent of Forest Surveys, will explain the system adopted when surveying Forests in India :—

GENERAL DESCRIPTION OF THE WORK.

The work hitherto accomplished by the Forest Survey differs from that ordinarily undertaken by the Imperial Survey Department, principally in that the ground is mountainous and forest-clad, such as would usually be surveyed by the Topographical Branch on the scale of 1 inch = 1 mile, based as a rule on triangulation only, the detail being sketched on the plane-table; and the scale and system of work adopted by the Forest Survey are more analogous to those employed in the Revenue Branch, which, generally speaking, is engaged in the survey of less rugged and more open country. The most densely-wooded tracts have been selected as forest reserves, and they are usually far from villages, and supplies and carriage are difficult to obtain. The survey is made on the comparatively large scale of 4 inches = 1 mile, and, to enable the maps to be fully utilised for the purpose of making valuation surveys and for the computation of the areas of compartments, as well as to enable the densely-wooded ground to be readily recognised from the maps, it is necessary to show many details, such as small ravines and spurs, and to lay them down on the maps with accuracy. The first step is to extend the triangulation previously executed by the Imperial Survey Department, so as to furnish the requisite number of fixed points for work on the larger scale. A network of traverses is then run over the ground, all important roads, paths, and stream-beds being measured; the traverses are connected with the trigonometrical stations, and the numerical values of the traverse stations are calculated from them. In the case of plateaux or other level ground, traverses are run across the drainage, so as to give a sufficient number of fixed points for the guidance of the plane-tablers. The plane-table work is based on the trigonometrical and traverse stations. In hilly ground the positions of all important ridges and spurs are fixed by means of plane-table intersections at

short intervals, and the beds of all important water-courses are chained, the chaining being connected with the trigonometrical or traverse stations, or with points fixed by intersection on the plane-table. This work is done by Native Sub-Surveyors on pay varying from Rs.8 to Rs.31 per mensem, three or four of them working under the direction of a European Surveyor. They then sketch in the ground between the measured elevations and depressions, and it is the business of the European Surveyor to check the accuracy and sufficiency of their measurements, and to complete the sketching in a correct and artistic manner. In order that it may be possible to distinguish at a glance on the field sheets the portions of ground which have been accurately surveyed from those which have merely been sketched, the features which have been laid down by chain measurement or by numerous intersections on the plane-table are shown on the field sheets in a different colour from the rest of the work. It is of great importance to have numerous local names correctly entered on the maps. On each field sheet is pasted a printed form in which the names within the area surveyed are entered by the plane-tabler both in English and in the Vernacular, reference being made by means of letters to the localities or features of the ground to which they relate. In order to furnish a large number of altitudes, which are of so much importance for forest work, numerous observations are made with the aneroid barometer, and a printed form for the entry of the barometrical observations is pasted on to each field sheet. Each plane-tabler is also furnished with a sheet of tracing cloth, on which he records the nature of the forest growth in such detail as is ordered from time to time. This work occupies a very short time, and, when it is intelligently done, it furnishes a very useful record.

METHOD OF EXECUTING TRAVERSES.

Last year the method adopted in the preparation of fair drawings was described, and an account will now be given of the manner in which the traverses are executed. The use of the theodolite for traversing has been entirely abandoned, as it has been found that satisfactory results can be obtained with a much simpler instrument, consisting of a plane-table, sight rule, and compass, the use of which was originally suggested to Major Bailey by General Walker. A circular card-protractor of 12 inches diameter is pinned down on a plane-table; on it is placed a 6 inches magnetic needle, and, to enable objects largely elevated or depressed to be observed, a fine thread is stretched between the central points of the tops of the vanes of the sight rule. The first step is to mark the position of the compass-box upon the card-protractor in such a manner as to eliminate the angle of variation of the magnetic needle and the angle of convergency between the meridian of the origin of the survey and that of the place where the instrument is being used. This is effected by setting up the table at a trigonometrical station near the main camp, and laying the sight rule across it at the angle of inclination of one of the sides of a triangle, at the apex of which the table stands; the top of the table is then moved round until the sight-vane points down the line to the inclination of which the ruler has been laid, and when the compass needle reads zero the position of the compass box is marked on the card. It is manifest that the meridian line of the card-protractor will then lie parallel to the meridian of the origin of the survey, and that if the table be set up during the course of a traverse, with the compass-box laid against the mark on the card, the same position of the meridian of the card will be maintained, and the readings will all give the inclinations to the meridian of origin which are required for the computations, no angular correction being needed, such as must be applied if a prismatic compass were employed. Should the work extend to a very long distance from the origin, so that the angle of convergency is much increased, it would be necessary to mark a new position for the compass-box from time to time, and in any case it is as well to correct the position of the compass now and then, and by observation from a neighbouring trigonometrical station. The instrument is set up over each traverse station, and care is taken that the reading at each end of the diameter along which the ruler lies is the same, for it is then certain that the edge of the ruler passes over the centre of the card-protractor. Back and

forward readings are taken between each pair of traverse stations, and thus there is a good check on the record of angular measurements. The instrument is of course more cumbrous than an ordinary prismatic compass, but it has the following advantages over both this and the theodolite. It is much less expensive than the theodolite; it is very strong, and, unless some of the parts are actually broken, it cannot get out of order; while it is at least as quickly set up and used, and the use of it can be very quickly learnt by any Native of ordinary intelligence who can read and record figures. The long needle and large arc, together with the convenience of being able to read at once the angles that are required for the computation, give it a great advantage over the prismatic compass, and the results obtained clearly show this. The arc is graduated to quarter degrees, and if the edge of the ruler lies between two marks its position between them is estimated, and the mean of the back and forward readings is used in the computations. Daily, hourly, or local variations of the magnetic needle are of course to be encountered, but these are common to all instruments in which the magnetic needle is depended on. The distances are measured with chains of different units (Gunter's and 100 feet chains), and the measurements in feet are converted on the spot into links by means of a table, so that any error can be detected and the distance re-measured at once, if necessary. The mean of the two measurements is adopted as the true distance when working out the computations. To obviate errors due to the slope of the ground, a clinometer is used, and the distances are corrected by means of a table before being entered in the computation sheets. The traverses often run over very rough ground, such as the dry stony beds of mountain streams, and the slope is sometimes as much as 30°, but the average hypotenusal correction for last year was only 4·1 per 1000, the figures for the previous year being 4·7. The following extract from the field-book will explain how it is kept:—

Distances in feet.	Reduction of Feet to Chains from Table.	B—back ray. F—forward ray.	Bearings and Mean of Distances.	Station Numbers.	Distances by Gunter's Chain.	Slope.
186	1·51 1·30	B	21° 08′			
	2·81		2·82	C^{22} H.S.	2·82	22°
		F	201° 00′			
169	1·51 1·05	B	9·30			
	2·56		2·57	65	2·57	6°
		F	189° 23′			
143	1·51 ·65	B	49·38			
	2·16		2·15	64	2·14	22°
		F	229° 45′			
317	4·55 ·26	B	15·30			
	4·81		4·81	63	4·81	18°

A further use is made of the instrument above described. Each traverser is furnished with a sheet showing the correct positions, on the scale of 4 inches= 1 mile, of all the trigonometrical stations in the neighbourhood of his work ; and, after inspection of existing small-scale maps, the lines that he has to traverse are roughly indicated for him on it, and he plots his work on this sheet by drawing the lines each time that he sets up the table. This system has three great advantages :—1st, the plot made on the ground is a check against gross error, such as the reversal of the inclination of a line ; 2d, the traverser can at once see how his work progresses with reference to trigonometrical stations, and can without difficulty connect it with any that he may approach, and make sure that he will be able to close his work on a fixed point ; 3d, it is easy to indicate to him before he goes out what is required of him. The whole of the traversing is executed on the system above described.

METHOD OF PREPARING FAIR DRAWINGS.

The fair sheets are drawn on bank-post paper, bound at their edges with cloth. Before the sheet is made over to the draughtsman, the graticule is projected by the aid of a brass frame perforated at the proper intervals, and the trigonometrical stations are plotted. In each drawing table is inserted a pane of glass, below which is fixed a tin reflector to throw the light upwards. The table is surrounded on three sides with curtains to keep out light from above. The fair sheet is laid on the table, and the field sheets, which are drawn on bank post paper mounted on thin cloth, are passed under it and adjusted over the glass by means of the squares and trigonometrical stations, and the topographical detail is traced in ink directly from the field sheets. The drawing proceeds uninterruptedly, without any intermediate tracing in pencil over an ordinary tracing glass, without the use of black transfer paper, and without consideration of the position of the names, which are subsequently added in the following manner :—A list of all the names which it is intended to show on the fair sheet is compiled from the field sheets. Serial numbers are entered both on the list and in the proper places on a sheet of tracing cloth drawn up to correspond with the fair drawing ; and the kind of type to be used is entered on the list opposite each name. The list thus prepared is made over to the type-printer, who sets up each name in succession, and prints it from four to six times on white paper. Several sets of names appear on each sheet of printing paper, the proper serial number being written against each name, and the sheets are then sewed together, and handed, with the list and the tracing cloth, to the man who is to attach the names to the fair drawing. This he does after the drawing is quite completed ; he selects the best impression of each name, cuts it out, and fastens the slip with gelatine in its proper place. He is guided to the locality by the number on the printing paper and the corresponding number on the tracing cloth, and he selects the exact spot for the name by reference to the field sheet. The edges of the slips are then scraped down, and if they appear too white the drawing is carried over their edges to the required extent. The fair drawing is then ready to be printed. The system here described has been found to answer very well, its great advantages being that while the topographical detail can be copied directly from the field sheet, and that thus small errors of copying which are unavoidable under most other systems are not so readily incurred, the four men, viz. the draughtsman, the list-maker, the printer, and the man who attaches the names to the sheets, work quite independently of one another from the beginning to the end of the season, and no one man is delayed by having to wait for the completion of the work of another.

17.—*Sir George Birdwood, M.D., C.S.I.*

Coloured Drawings of Indian Trees.

18.—*Superintendent of the Botanical Gardens,* POONA.

Botanical Specimens.

19.—*Sir Walter Elliot, K.C.S.I.*

A carved Portfolio of Blackwood (Dalbergia latifolia); Bombay.

20.—*Major-General C. Wahab.*

Two carved Tables of Blackwood (Dalbergia latifolia); Bombay.

21.—*J. J. Cowan, Esq.*

One carved Table of Blackwood (Dalbergia latifolia); Bombay.

22.—*H. Cleghorn, Esq., M.D., F.L.S.*

1. Tibetan Printing Block, prepared by Rev. H. A. Jaeschke, Moravian Missionary, Lahoul.
2. Coffee Stick, showing effects produced by borer; Wynad.
3. Baobab Fruit (Adansonia digitata); Madras.
4. Portion of Railway Sleeper—Madras—showing tunnels made by Carpenter Bee (Xylocopa).
5. Portion of Teak Wood Pile—Rangoon—showing effects produced by Teredo Navalis.
6. Portion of Keel of Ship American Oak—Rangoon—showing effects produced by Teredo Navalis.
7. Portion of branch of Mango, encircled by parasite, Loranthus longiflorus, near Calicut.
8. Two specimens Vegetable Ivory (Phytelephas).
9. Fruit of Entada scandens; Malabar.
10. Water-colour sketch of effects of Cyclone in 1864, in Botanical Gardens, Calcutta.
11. Three sketches of Aborigines of the Nilgiris.

23.—*Mrs. Atholl Macgregor.*

Collection of Butterflies, Mantidæ, and other Insects, Travancore.

24.—*Atholl Macgregor, Esq.*

Collection of Birds from Travancore. Pith Model of Temple, Trichinopoly, Madras.

25.—*A. Hill Gray, Esq.*

Musical Instrument made of Bamboos from Siam. Creeper from Siam.

26.—*Thomas Aitken, Esq., Leith.*

Gong-stand carved in Teak (Tectona grandis), with Gong; Burmah.

27.—*A. T. Shuttleworth, Esq., Conservator of Forests,* NORTHERN CIRCLE, BOMBAY.

1 and 2. Carved brackets of Teak, (Tectona grandis).
3. Carved frame of Blackwood, (Dalbergia latifolia), containing Sir J. Fergusson's portrait.
4. Native Cart.
5. Do.
6. Log of Babul, (Acacia arabica).
7, 8, 9. Planks of Babul, (Acacia arabica).
10 to 17. Babul bark (Acacia arabica), from old woods and branches, used in tanning and dyeing, and forms part of the preparation from which native spirits are distilled.
18. Babul pods, (Acacia arabica).
19. Tarwad, (Cassia auriculata).
20. Hirda, (Terminalia chebula).
21. Shikakai, (Acacia concinna).
22. Lac, containing dye as collected from branches of the Babul, (Acacia arabica.)
23. Lac as it is prepared previous to being melted and strained through a cloth, washed free from the dye, and ground to powder in a stone mill.
24. Lac cleaned and strained through a cloth. To this preparation different colours are added, and it is used in lacquer work.
25. Ak (Calotropis procera) fibre.

28.—*The Bombay Presidency.*

TIMBER SPECIMENS.—These arrived in rough logs, and have been cut and polished so as to show horizontal, vertical, and sloping sections, as well as bark and sapwood.

1. Taman, ... Lagerströmia flos-reginæ.
2. Hingunbet?

3.	Wild Mango,	Mangifera sylvatica.
4.	Kálá Kudu,	Wrightia tinctoria.
5.	Sem,	Soymida febrifuga.
6.	Bhokur,	Cordia rothii.
7.	Bhawá,	Cassia fistula.
8.	Wowla,	Ulmus integrifolia.
9.	Bukul,	Mimusops elengi.
10.	Yehela,	Terminalia belerica.
11.	Jamba,	Inga xylocarpa.
12.	Kinai,	Acacia procera.
13.	Jhand,	Prosopis spicigera.
14.	Kermel,	Dillenia pentagyna.
15.	Hoora,	Symplocos racemosa.
16.	Peesa,	Actinodaphne lanceolata.
17.	Shen Khair,	Acacia sundra.
18.	Kalamb,	Nauclea cadamba.
19.	Hadu,	Nauclea cordifolia.
20.	Anjani,	Memecylon amabile.
21.	Broom Babul,	Acacia arabica (?).
22.	Palas,	Butea frondosa.
23.	Woomb,	Nephelium longana.
24.	Hulda,	Chloroxylon swietenia.
25.	Hoom,	Polyalthia cerasoides.
26.	Phanas,	Artocarpus integrifolia.
27.	Moklo,	Schrebera swietenioides.
28.	Meedsh ughi?	
29.	Bibwa,	Semecarpus anacardium.
30.	Neem,	Melia azadirachta.
31.	Jambul,	Syzygium jambolanum.
32.	Chinch,	Tamarindus indica.
33.	Nana,	Lagerströmia parviflora.
34.	Chinch,	Tamarindus indica.
35.	Dhavda,	Anogeissus latifolia.
36.	Karamb,	Stephegyne parviflora.
37.	Kangan?	
38.	Chandan,	Santalum album.
39.	Lendya,	Lagerströmia parviflora.
40.	Lokhundi,	Ventilago maderaspatana.
41.	Got bor, (Ranbor),	Zizyphus xylopyra.
42.	Kombha,	Careya arborea.
43.	Amb,	Mangifera indica.
44.	Apta,	Bauhinia parviflora.
45.	Asana,	Bridelia spinosa.
46.	Shewan,	Gmelina arborea.
47.	Kirrir?	
48.	Timburni,	Diospyros montana.
49.	Bhan,	Populus euphratica.
50.	Babul,	Acacia arabica.

51.	Maack.	
52.	Sawar, ...	Bombax malabaricum.
53.	Arjun, ...	Terminalia arjuna.
54.	Kooruk, ...	Garuga pinnata.
55.	Bel, ...	Ægle marmelos.
56.	Warras, ...	Bignonia quadrilocularis.
57.	Khair, ...	Acacia catechu.
58.	Chinch, ...	Tamarindus indica.
59.	Tewas, ...	Dalbergia oogeinensis.
60.	Pan jam bool, . . .	Eugenia heyneana.
61.	Sisso, ...	Dalbergia sissoo.
62.	Bibla, ...	Pterocarpus marsupium.
63.	Bukul, ...	Mimusops elengi.
64.	Bok kan, ...	Melia azadirachta.
65.	Ran jaephal, ...	Myristica sp.
66.	Kosimb, ...	Schleichera trijuga.
67.	Dhaman, ...	Grewia tiliæfolia.
68.	Boor Kus?	
69.	Sirrus, ...	Acacia odoratissima.
70.	Mhow, ...	Bassia latifolia.
71.	Nimbara, ...	Melia dubia.
72.	Khersing, ...	Bignonia xylocarpa.
73.	Ain, ...	Terminalia tomentosa.
74.	Bhor, ...	Zizyphus jujuba.
75.	Ran or Makur limb, . .	Atalantia monophylla.
76.	Pudal, ...	Stereospermum suaveolens.
77.	Kouth?	
78.	Kunchun, ...	Bauhinia tomentosa.
79.	Hewer.	
80.	Lullye, ...	Acacia amara.
81.	Saitana, ...	Alstonia scholaris.
82.	Bhendi, ...	Thespesia populnea.
83.	Ranphanus, ...	Artocarpus hirsuta.
84.	Ghela, ...	Randia dumetorum.
85.	Shiye?	
86.	Bonda, ...	Lagerströmia lanceolata.

PLANKS.

87.	Teak, ...	Tectona grandis.
88.	Huldoo, ...	Adina cordifolia.
89.	Dhamin, ...	Grewia sp.
90.	Blackwood, ...	Dalbergia latifolia.
91.	Khair, ...	Acacia ferruginea.
92.	Kudumb, ...	Nauclea cadamba.
93.	Kanti?	
94.	Sal, ...	Shorea robusta.
95.	(Unidentified).	

96. Narrow-gauged Teak Sleeper, (Tectona grandis).
97. Narrow-gauged Jambha Sleeper, (Xylia dolabriformis).
98. A collection of Bamboos, Canes, etc.
99. Six Walking-sticks.
100. Four Mats.
101. Sixteen specimens of Lacquered Ware.

29.—*Forest Officer*, THANA, BOMBAY.

1 to 4. Four descriptions of Axes used by forest villagers.
5. "Karwah" or Saw used by Timber Dealers to saw firewood into billets.
6. "Yirla" or South-wester used by men of forest villages for protection from rain, made of Bamboos and leaves of Palla or Butea frondosa.
7. Do. do. used by women, do. do.

30.—*Colonel W. Peyton, Conservator of Forests*, SOUTHERN CIRCLE, BOMBAY, *through W. A. Talbot, Esq., Assistant Conservator of Forests*, N. KANARA, BOMBAY.

TIMBERS—in Slabs, Polished and Unpolished.

44.	Vitex altissima,	Balge.
45.	Mangifera indica,	Maon.
46.	Artocarpus integrifolia,	Phanas.
47.	Schleichera trijuga,	Hagadi.
48.	Terminalia tomentosa,	Matri.
49.	Chickrassia tabularis,	Lal Devdar.
50.	Calophyllum Wightianum,	Bobbe.
51.	Adina cordifolia,	Hedde.
52.	Albizzia amara,	Bilkambi.
53.	Dalbergia latifolia,	Bih Shisham.
54.	Xylia dolabriformis,	Jamba.
55.	Gmelina arborea,	Shivani.
56.	Artocarpus hirsuta,	Hellalsu.
57.	Pterocarpus marsupium,	Hanne.
58.	Lagerströmia parviflora,	Chaunangi.
59.	Tectona grandis,	Tégu.
60.	Stephegyne parviflora,	Kalamb.
61.	Terminalia paniculata,	Hunal.
62.	Ougeinia dalbergioides,	Kari.
63.	Cedrela toona,	Dévdár.

FOREST ECONOMIC PRODUCTS.

1.	Areca catechu,	Adike.
2.	Xylia dolabriformis,	Jamba.
3.	Bauhinia malabarica,	Banni.

4.	Eleusine coracana,	Ragi.
5.	Caryota urens.	
6.	Dolichos catiang,	Alsandi.
7.	Bixa orellana,	Kuppa manhala.
8.	Mesua ferrea,	Nagchámp.
9.	Lagerströmia parviflora,	Bilenandi.
10.	Ricinus communis,	Audla.
11.	Terminalia arjuna.	
12.	Caryota urens.	
13.	Garcinia indica,	Murgul.
14.	Piper nigrum,	Menasu.
15.	Acacia concinna,	Sige Kai.
16.	Caroyta urens.	
17.	Coffea arabica,	Bundu.
18.	Panicum miliare,	Sháve.
19.	Terminalia tomentosa.	
20.	Mimusops elengi,	Bakul.
21.	Caryota urens.	
22.	Mallotus philippinensis,	Kapilhittu.
23.	Cassia fistula,	Kakkai.
24.	Mucuna monosperma,	Kadganape.
25.	Strychnos nux vomica,	Kajrá.
26.	Zizyphus rugosa,	Godache.
27.	Sterculia guttata,	Happusavag.
28.	Terminalia belerica,	Tarekai.
29.	Oryza sativa,	Nellaki.
30.	Bauhinia Lawii,	Basvanpad.
31.	Terminalia paniculata.	
32.	Calosanthes indica,	Tetu.
33.	Terminalia chebula,	Hirdas, (Myrabolans).
34.	Corypha umbraculifera,	Bajarbet.
35.	Chickrassia tabularis.	Lal Devdar.
36.	Garcinia indica,	Nhirgal.
37.	Alpinia cardamomum,	Yelakki.

MISCELLANEOUS.

38. Box of Cane, (Calamus rotang).
39. Floats made of Excœcaria agallocha.
40. Set of Tools used by the native Gudigars, or carvers in Sandalwood.
41. Common Axe.
42. Koita-Kandli, or Pruning Knife, used for cutting underwood.
43. Model of a Waddar's Cart, used for taking heavy timber.

31.—*B. J. Haselden, Esq., Assistant Conservator of Forests,* N. KANARA, BOMBAY.

Fly Switch, imitation Yak's tail, of Sandalwood.
Two Book Covers of Carved Ebony.

Two Tigers, Sandalwood and Ebony.
Two Cows with Calves, Sandalwood.
Two Elephants, Sandalwood.
One Comb, Sandalwood.
One Box containing Necklace and Buttons of Vegetable Ivory.

32.—*H. L. Wooldridge, Esq., Deputy-Conservator of Forests, District Forest Officer,* SOUTH ARCOT, MADRAS.

Class II.—Section 1. COLLECTIONS OF TIMBER SPECIMENS AND ORNAMENTAL WOODS.

(*a.*) INDIGENOUS OR NATURALISED.

1.	Santalum album,	Sandanam, (Sandal).	
2.	Pterocarpus marsupium,	Véngai.	
3.	Dalbergia latifolia,	Iruvadi, (Blackwood).	
4.	Diospyros melanoxylon,	Karun-tumbai, (Ebony).	
5.	Hardwickia binata,	Áchá.	
6.	Avicennia littoralis,	Venkandan	Rhizophoreæ—Salt-marsh tree or mangrove.
7.	Avicennia officinalis,	Karunkandan	Rhizophoreæ—Salt-marsh tree or mangrove.
8.	Do.	Narikandan	
9.	Do.	Tuvarkandan	
10.	Do.	Kakandan	
11.	Sonneratia apetala,	Mámamaram	
12.	Do.	Somúndiri	
13.	Rhizophora mucronata,	Suraipinnai	

(*b.*) EXOTIC.

14.	Casuarina muricata,	Chouk, (Casuarina).

Section 6. WOOD CARVING.

Carved sandalwood (Santalum album) box, with floral design and figures on four sides and on cover.	Sandalwood.
Carved sandalwood (Santalum album) round case, with moveable top secured by a bead, which must be pulled out straight to open it.	Do.

The wood is the produce of the Ténnıalai Forest, South Arcot Division, carved by a native amateur at Cuddalore.

Section 7. BASKET AND WICKER WORK.

17. Phœnix pedunculata, . . Siru icham, (Small date).
    (*a*) Waste-paper basket.
    (*b*) Market basket.
    (*c*) Spittoon.
    (*d*) Hencoop.
    (*e*) Fish basket.
    (*f*) Fish tray.
    (*g*) Pigeon cage.

Section 10. BAMBOOS, CANES, REEDS, AND MANUFACTURES THEREFROM.

16. Calamus rotang, . . . Perambu, (Common cane).
    (*a*) Unwrought.
    (*b*) Baskets.
    (*c*) Boxes.
    (*d*) Scale-pan.

Section 11. TANNING SUBSTANCES AND EXTRACTS.

17. Cassia fistula, . . . Kát-konnai or Vellai-konnai, (Indian laburnum).
18. Cassia auriculata, . . . Áváram.
19. Acacia arabica, . . . Karuvélam, (Babúl).

(*b.*) Extracts.

20. Cassia fistula, . . . Kát-konnai, (Indian laburnum).

Section 12. DYEING SUBSTANCES.

(*a.*) Roots.

21. Oldenlandia umbellata, . . Imburán or Siruvér.

(*b.*) Barks.

22. Rhizophoreæ, . . . Pannikutti, (Salt-marsh shrub).
23. Do. . . . Tuvarkandan, do.
24. Casuarina muricata, . . Chouk, (Casuarina).

(*c.*) Powder.

25. Mallotus philippinensis, . . Kapila-podi.

Section 13. BARKS, INCLUDING CORK.

26. Acacia leucophlœa, . . Velvélam, (White Acacia).

Section 14. FIBRES AND FIBROUS SUBSTANCES.

27. Calotropis gigantea, . . Surukan, (Swallow Wort).
28. Hardwickia binata, . . Áchá.
29. Sanseviera zeylanica, . . Marúl, (Bowstring Hemp).
30. Bauhinia racemosa, . . Átti.
31. Agave americana, . . . Anekattalai, (Aloe).
32. Pandanus odoratissimus, . . Tálai, (Screw-pine).

Section 16. GUMS.

33. Azadirachta indica, . . Vémbu, (Margosa).
34. Acacia arabica, . . . Karuvélam, (Babul).

Section 17. WOOD OILS.

35. Anacardium occidentale, . . Mundiri, (Cashew-nut).
36. Calophyllum inophyllum, . Pinnai, (Alexandrian laurel).
37. Bassia latifolia, . . . Ilupai.

Section 18.—DRUGS, FOODS, SPICES.

38. Bryonia epigœa, . . . Ákása-garudan, (Calumba root).
39. Hemidesmus indicus, . . Nannári, (Sarsaparilla).
40. Arum campanulatum, . . Púmisakkare - kilangu, (Telinga Potato).

Section 21. CONES, SEEDS, AND FRUITS OF TREES AND SHRUBS.

(*a.*) Seeds.

41. Anacardium occidentale, . . Mundiri, (Cashew).
42. Acacia arabica, . . . Karuvélam (Babúl) pods.
43. Abrus precatorius, . . . Ané-kundamani, (Wild liquorice, large).
44. Do. . . . Siru - kundamani, Sigapu, (Wild liquorice, small red).
45. Do. . . . Kundamani, Vellai, (Wild liquorice, white).
46. Do. . . . Kundamani, Karupu, (Wild liquorice, black).

(*b.*) Fruits.

47. Zizyphus jujuba, . . . Elandai, (Indian cherry).

33.—*A. E. Wild, Esq., Conservator of Forests,* PUNJAB.

Class I.—PRACTICAL FORESTRY.

SECTION 2.—MODELS, MODELS OF FORESTERS' HUTS, DRYING SHEDS.

No. marked on Article.	Name of Article—English, Vernacular.	Name of Species from which manufactured.	Locality where produced.
255	Bridge, Model of, over the river Ravi at Bakani		
256	Bakani Slide, Model of, together with description and plates		
65	Rope Bridge, Model of, (Jhula)	...	Used in Busahir.
66	Oil Mill, Model of, (Kolu), .	Dalbergia sissu	Busahir.
75	Plough, Model of, (Hul), .	Do.	Do.
76	Do. Do. . .	Do.	Do.
77	Clod-crusher, (Sohage), .	Do.	Do.
78	Spinning Bole, (Takali), .	Do.	Do.
86	Chair, Model of (Pira), forming part of a bride's dowry, generally made of Acacia arabica, or Dalbergia sissu, . . .	Do.	Do. Wazirabad.
88	Spinning Wheel, (Churka),		Do.
90	Rolling Board, (Chukla), .		Do.
112	Persian Wheel, (Jallar), .	Various as marked	Lahore.
113	Bullock Cart, (Bail Gari), .	Do.	Do.
115	Rake, (Jandrie), . .	Dalbergia sissu	Do.
116	Plough, (Hul), . . .	Do.	Do.
55	Door, Model of a Temple, (Prol)	Pinus excelsa	Busahir.
87	Butter Churn, Model of, (Madani)	Capparis aphylla	Wazirabad.
89	Roller, Model of, (Bailim), used for making bread	Dalbergia	Do.
232	Umbrella, Model of, (Chattas), made from the Birch bark	Betula bhojpatra	Kulu.

FOREST PRODUCE, RAW AND MANUFACTURED.

SECTION 7.—BASKET AND WICKER WORK.

2	Basket, (Kandi), . .	Indigofera .	Chamba.
3	Basket, (Phuldan), . .	Do.	Do.
4	Basket, (Khsagri), . .	Do.	Do.

No. marked on Article.	Name of Article—English, Vernacular.	Name of Species from which manufactured.	Locality where produced.
21	Basket, (Tokri), . .	Tamarix dioica	Gajranwala.
22	Basket, (Changair), . .	Phœnix dactylifera	Mazaffargarh.
23	Basket, (Dul), . . .	Do.	Multan.
27	Basket, (Pitar), . . .	Do.	Mazaffargarh.
28	Basket, (Pitari), . .	Do.	Do.
32	Basket, (Puchi), . .	Do.	Do.
35	Scales, (Turaya), . .	Do.	Multan.

SECTION 10.—BAMBOOS, CANES.

1	Basket, (Kilta), . .	Bamboo . .	Chamba.
2½	Basket, (Kandi), . .	Do. . .	Do.
5	Basket, (Kiltra), . .	Arundinaria falcata	Busahir.
6	Basket, (Peroo), . .	Do.	Do.
7	Basket, (Pingra), . .	Do.	Do.
8	Basket, (Peel), . . .	Do.	Do.
9	Basket, (Pitar), . .	Do.	Do.
10	Basket, (Sanjang), . .	Do.	Do.
12	Basket, (Kurndoo), . .	Do.	Do.
13	Basket, (Chubra), . .	Do.	Do.
14	Basket, (Dowr), . .	Do.	Do.
15	Basket, (Tokri), . .	Bamboo	Kulu.
17	Basket, (Phaldan), . .	Do.	Do.
18	Basket, (Chaboo), . .	Do.	Do.
38	Basket, (Pitari), . .	Do.	Hushiarpur.
39	Basket, (Pitari), . .	Do.	Do.
40	Basket, (Dul), . . .	Do.	Do.
41	Basket, (Chikkoo), . .	Do.	Do.
42	Basket, (Chikkoo), . .	Do.	Do.
43	Basket, (Chabba) . .	Do.	Do.
36	Bird's cage, (Pinjea), . .	Do.	Do.
37	Bird's cage, (Pinjea), . .	Do.	Do.
11	Mat, (Chutai), . . .	Arundinaria falcata	Busahir.
16	Basket, (Bharloo), . .	Bamboo	Kulu.
19	Basket, (Barli), . .	Do.	Do.
20	Basket, (Pirowti), . .	Kana grass (Saccharum sara)	Gajranwala.
24	Basket, (Chuj), . .	Do.	Multan.
25	Cradle, (Jhula), . .	Do.	Do.
26	Sieve, (Chulia), . . .	Do.	Do.
29	Basket, (Pitari), . .	Do.	Do.

No. marked on Article.	Name of Article—English, Vernacular.	Name of Species from which manufactured.	Locality where produced.
30	Basket, (Pitar), . . .	Saccharum sara	Multan.
31	Basket, (Puchi), . .	Do.	Mazaffargar.
34	Basket, (Puchi), . .	Do.	Do.
33	Basket, (Chikroo), . .	Typha angustifolia	Dera Ghazi Khan.
79½	Pipe, (Huka), . . .	Arundinaria falcata	Busahir.
106	Flute, (Bansire), . .	Bamboo	Lahore.
109	Flageolet, (Algaga), . .	Do.	Do.
253	Bow, (Gulail), . . .	Do.	Hushiarpur.
254	Alpenstock, . . .	Do.	Do.

SECTION 12.—DYEING SUBSTANCES, WOODS, ROOTS, FLOWERS, ETC.

134	Dye, red, (Majit), . .	Rubia . .	Busahir.
154	Dye, red, (Majit), . .	Do.	Kulu.
135	Bark, (Jiko), . . .	Daphne oleoides (mucronata)	Busahir.
136	Bark, (Ban), . . .	Quercus incana	Do.
147	Yellow dye, (Akilbir), .	Datisca cannabina	Chamba.
137	Dye, yellow, (Akilbir), .	Do.	Busahir.
138	Yellow dye, (Kara), . .	Do.	Do.
139	Red dye, (Salsia), . .	Do.	Do.
155	Yellow, (Lodur), . .	Do.	Kulu.
156	Black, (Jakri), . . .	Do.	Do.
156½	Red, (Kamela), . .	Rottlera tinctoria	Hushiarpur.
140	Yew Bark, (Yumdul Ki Bakel)	Taxus baccata	Busahir.
141	Red dye, (Nuki-Ki Bakel),	Ulmus nitida	Do.
142	Bark, (Chinese Ki Bakal), .	Morus serrata	Do.
143	Elmbark, (Shoh Ki Bakal),	Ulmus campestris	Do.
149	Yellow dye, (Kease), .	Butea frondosa	Gajranwala.
145	Red dye, (Kamla), . .	Mallotus philippinensis	Chamba.
146	Yellow dye, (Resaunta), .	Berberis Asiatica	Do.
151	Yellow dye, (Simlu), . .	Do.	Rawal Pindi.
148	Yellow dye, (Lakl), . .	Zizyphus nummularia	Gajranwala.

No. marked on Article.	Name of Article—English, Vernacular.	Name of Species from which manufactured.	Locality where produced.
150	Yellow dye, (Dhaur), . .	Woodfordia floribunda	Rawal Pindi.
152	Yellow dye, (Mahin), . .	Tamarix orientalis	Multan.
153	Walnut Bark, (Daudasa), .	Juglans regia	Kulu.
225	Barklis Gum, (Chal), .	Do.	Kalesar.
	Section 13.—Barks, including Cork.		
229	Kooni Kipi, . . .	...	Kulu.
230	Singli, ...	...	Do.
231	Birch bark, (Bhojpatra), .	Betula bhojpatra	Do.
252	Bark, (Foia), . . .	Grewia vestita	Chamba.
	Section 14.—Fibres and Fibrous Substances.		
245	Fibre, (Dhak), . . .	Butea frondosa	Kalesar.
246	Fibre, (Godra), . .	Do.	Do.
247	Fibre, (Maljan), . .	Bauhinia racemosa	Do.
248	Fibre, (Thor), . . .	Colutea arborescens	Do.
	Section 16.—Gums, Resins of Gums, Elastics.		
227	Chirowli, gum, . . .	...	Kalesar.
226	Thingan, gum, . . .	Odina wodier .	Do.
208	Thingan, gum, . . .	Do.	Rawal Pindi.
223	Gum, (Dhak), . . .	Butea frondosa	Gajranwala.
224	Gum, (Phulai), . . .	Acacia modesta	Do.
220	Resin, (Ki-Kigoond), .	Abies smithiana	Busahir.
213	Resin, (Ki-Kigoond), .	Do.	Chamba.
218	Resin, (Dias Ki-goond), .	Cedrus deodara	Busahir.
219	Resin, (Bamee-Ki-goond), .	Prunus persica	Do.
216	Resin, (Kail Ki-goond), .	Pinus excelsa .	Do.
228	Resin, (Kail Ki-goond), .	Do.	Hushiarpur.
222	Resin, (Ki-Ki-goond), .	Pinus gerardiana	Busahir.
214	Resin, (Ki-Ki-goond), .	Do.	Chamba.
221	Gum, (Chooli Ki-goond), .	Prunus armeniaca	Busahir.
215	Gum, (Chooli Ki-goond), .	Do.	Chamba.
217	Gum, (Spun Ki-goond), .	Picea webbiana	Busahir.
207	Gum, (Berdo), . . .	Zizyphus vulgaris	Rawal Pindi.
205	Gum, (Khais), . . .	Acacia catechu	Do.
206	Resin (Khais), . . .	Pinus longifolia	Do.

No. marked on Article.	Name of Article—English, Vernacular.	Name of Species from which manufactured.	Locality where produced.
212	Gum, ...	Pistacia integerrima	Chamba.
211	Gum, ...	Amygdalus persica	Do.
209	Gum, ...	Prunus padus .	Do.
210	Gum, ...	Cupressus torulosa	Do.

SECTION 17.—WOOD-OILS AND VARNISHES.

234	Oil of Deodar, (Diar-ki-tel),	Cedrus deodara	Busahir.
235	Wild oil of peach, (Beemi ki-tel)	Prunus persica	Do.
236	Oil of walnut, (Akrot-ki-tel),	Juglans regia .	Do.
237	Oil of apricot, (Chooli ki-tel),	Prunus armeniaca	Do.

SECTION 18.—DRUGS, FOODS, SPICES.

144	Soap nut (Rita), . .	Sapindus detergens	Busahir.
233	Spirit of Wild Peach, (Beemi ki shrab)	Prunus persica	Do.
157	Onion, (Phasu), . .	Allium rubellum	Kulu.
171	Onion, (Piaz), . . .	Do.	Busahir.
158	Onion, (Abrak), . .	Do.	Kulu.
159	Titri, ...	Rhus semialata	Do.
160	Sik, ...	Pavia indica .	Do.
161	Bettar, ...	Juniperus recurva	Do.
161½	Kashmiri Patti, . .	Rhododendron campanulatum	Do.
162	Nilofar, ...	Nymphœa alba	Multan
163	(Bahlion Sehuwar), . .	...	Dera Ghazi Khan.
166	Bahera, ...	Terminalia bellerica	Multan.
202	Do., ...	Do.	Hushiarpur.
194	Do., ...	Do.	Kalesar.
165	(Gorak Pann), . . .	Heliotropium brevifolium	Multan.
167	Panir, ...	Withania coagulans	Do.
168	Bophal, ...	Convolvulus pluricaulis	Do.

No. marked on Article.	Name of Article—English, Vernacular.	Name of Species from which manufactured.	Locality where produced.
169	(Parsha arsha), . . .	Adiantum capillus veneris	Multan.
170	(Harmal), ...	Peganum harmala	Do.
172	Incense, (Dhup), . .	Dolomæa macrocephala	Busahir.
176	Spice, (Punjbasar), . .	...	Do.
173	Spice, (Nihani), . .	...	Do.
174	Root, (Sarpal), . . .	...	Do.
175	Caraway, (Zira), . .	Carum carui .	Do.
177	Medicine, (Karu), . .	Gentiana kurro	Do.
178	Drug, (Teliali), . . .	Aconitum napellus	Do.
179	Drug, (Nagdaon), . .	Staphylea emodi	Do.
180	Drug, (Keshting), . .	Indigofera heterantha	Do.
181	Drug, (Chookri), . .	Rumex . .	Do.
182	Drug, (Koo), . . .	Celtis caucasica	Do.
183	Drug, (Puttes), . . .	Aconitum heterophyllum	Do.
184	Drug, (Ruskshi), . .	...	Do.
185	Drug, (Banuksha), . .	Viola serpens	Do.
186	Drug, Kummar, (Kush), .	Butea frondosa	Do.
187	Pomegranate Bark, (Daruch)	Punica granatum	Do.
188	Chirata, (Chirata), . .	Ophelia chirata,	Do.
189	Tuk, (Malunga), . .	Lalleventia royleana .	Gajranwala.
190	(Isafgool), . . .	Plantago ispaghula	Do.
191	(Huror), ...	Terminalia chebula	Kalesar.
201	Do., ...	Do.	Hushiarpur.
192	(Moror Phali), . . .	Helicteres isora,	Kalesar.
193	(Main Phal), . . .	Randia dumetorum, . .	Do.
195	(Oula), ...	Phyllanthus emblica	Do.
203	(Oula), ...	Do.	Hushiarpur.
200	(Oula), ...	Do.	Rawal Pindi.
196	(Inderjau), . . .	Holarrhena antidysenterica	Kalesar.
197	(Amaltas), . . .	Cathartocarpus fistula	Do.

No. marked on Article.	Name of Article—English, Vernacular.	Name of Species from which manufactured.	Locality where produced.
198	(Gulloo), ...	...	Kalesar.
199	(Bhang), ...	Cannabis sativa,	Do.
204	(Resaunt), . . .	Berberis lycium	Hushiarpur.

SECTION 21.—CONES, SEEDS, AND FRUIT OF TREES AND SHRUBS.

238	Horse-Chestnut, (Kanor), .	Pavia Indica, .	Busahir.
239	Peach, (Beemi), . .	Prunus Persica,	Do.
240	Apricot, (Chooli), . .	Prunus Armeniaca	Do.
241	Edible, (Pine Re), . .	Pinus Gerardiana	Do.
242	Pear, (Besar), . . .	Pyrus variolosa,	Do.
243	(Kyorum), . . .	Fungus, . .	Kulu.

Class III.—SCIENTIFIC FORESTRY.

1 Taproot of the Jhand (Prosopis spicigera), in Sections, to illustrate the vegetation of the Bar (elevated land between the rivers of the plain), with drawing.

Class V.—ILLUSTRATIONS OF FORESTRY.

257 Photographs showing timber slides.

258 Photographs exhibiting re-afforestation operations in the Pabbi Hills (denuded low hills intersected with deep ravines, and much subject to erosion).

MISCELLANEOUS MANUFACTURES.

44	Comb, (Khangi), . .	Pyrus variolosa,	Chamba.
45	Comb, (Khangi), . .	Boxwood, .	Do.
46	Comb, (Khangi), . .	Zizyphus, .	Do.
47	Spindle, (Unsan), . .	Do.	Do.
48	Grain Measure, (Maine), .	Maple, . .	Do.
49	Tobacco-Box, (Dubbi), .	Morus serrata, .	Do.
50	Ointment do., (Dungi), .	Do.	Do.
51	Drinking vessel, (Thuta), .	Do.	Do.
52	Butter do., (Paru), .	Do.	Do.
133	do. do., (Katroo), .	Do.	Kulu

No. marked on Article.	Name of Article—English, Vernacular.	Name of Species from which manufactured.	Locality where produced.
53	Pen and Ink Box, (Kulandan)	Dalbergia sissu,	Chamba.
79	Pipe, (Chillum), . .	Do.	Busahir.
70	Bedposts, (Charpoy), .	Do.	Wazirabad.
81	Box (Sundook), . .	Do.	Do.
82	Ruler, ...	Do.	Do.
83	Picture Frame, . . .	Do.	Do.
91	Grain Measure, (Puropi), .	Do.	Do.
94	Comb, (Kanghi), . .	Do.	Lahore.
107	Fluti, (Bausire), . .	Do.	Do.
110	Box, (Surmadan), . .	Do.	Do.
111	Box, (Dabbi), . . .	Do.	Do.
117	Pestle and Mortar, (Mobli),	Do.	Do.
118	Spindle, (Dehrin), . .	Do.	Do.
119	Child's Rattle, (Chinkua), .	Do.	Do.
120	Muffineers, (Nmiakdau), .	Do.	Dera Ghazi, Khan.
121	Box, (Dubbi), . . .	Do.	Muzaffargarh.
122	Box, (Dubbi), . . .	Do.	Dera Ghazi, Khan.
128	Butter Churn, (Madui), .	Do.	Mazaffargarh.
54	Chest, (Mausi), . . .	Pinus excelsa, .	Busahir.
59	Cup, (Jamo), . . .	Do.	Do.
60	Cup, (Purpa), . . .	Do.	Do.
64	Bowl, (Joa), . . .	Do.	Do.
56	Stamp, (Saucha), . .	Cedrus, deodara	Do.
57	Chest, (Kuthar), . .	Do.	Do.
58	Trunk, (Sandook), . .	Do.	Do.
61	Bowl, (Juata), . . .	Juglans regia, .	Do.
67	Loom, (Juck), . . .	Do.	Do.
69	Spoon, (Doi), . . .	Do.	Do.
62	Stick, (Dooma), . .	Taxus baccata,	Do.
63	Stick, (Serangi), . .	Do.	Do.
68	Cup, (Jaug), . . .	Do.	Do.
70	Mug, (Toomta), . .	Do.	Do.
71	Scales, (Tuckree), . .	Do.	Do.
72	Scales, (Poray), . .	Do.	Do.
74	Spinning Bole, (Thernoo), .	Do.	Do.
73	Spinning, Bole, (Karoo), .	Buxus sempervirens	Do.
101	Comb, (Kanghi), . .	Do.	Lahore.
84	Weaver's Frame, (Hatha), .	Do.	Gujrat.
85	Ruler, ...	Do.	Do.

No. marked on Article.	Name of Article—English, Vernacular.	Name of Species from which manufactured.	Locality where produced.
92	Comb, (Kanghi), . .	Dalbergia sissu,	Wazirabad.
93	Comb, (Kanghi), . .	Do.	Do.
95	Comb, (Kanghi), . .	Do.	Lahore.
96	Comb, (Kanghi), . .	Do.	Do.
114	Butter Churn, (Madani), .	Do.	Do.
97	Comb, (Kanghi), . .	Odina wodier, .	Do.
98	Comb, (Kanghi), . .	Wrightia tomentosa	Do.
99	Comb, (Kanghi), . .	Do.	Do.
100	Comb, (Kanghi), . .	Do. mollissima,	Do.
102	Comb, (Kanghi), . .	Olea cuspidata,	Do.
103	Comb, (Kanghi), . .	Do.	Do.
104	Comb, (Kanghi), . .	Stephegyne parvifolia	Do.
105	Comb, (Kanga), . .	Do.	Do.
129	Comb, (Kanga), . .	Pyrus aria, .	Chamba.
108	Flute, (Bausire), . .	Olea cuspidata,	Lahore.
123	Vegetable Grates, (Kudoo, Kush)	Tamarix articulata	Multan.
124	Grain Measure, (Puropi),	Do.	Mazaffargarh.
125	Box, (Dubbi), . . .	Do.	Do.
126	Box, (Dubbi), . . .	Do.	Do.
127	Cup, (Piala), . . .	Do.	Dera Ghazi Khan.
130	Cup, (Talashu), . .	Pavia indica, .	Kulu.
131	Bowl, (Paru), . . .	Do.	Do.
132	Plate, (Koda), . . .	Do.	Do.
48	Shoes, (Pûl), . . .	Grass, . .	Chamba.
49	Shoes, ...	Rice-Stalks, .	Do.
50	Shoes, (Bagral), . .	Various Grass,	Do.
51	Shoes, (Pul), . . .	Grewia vestita,	Do.
52	Shoes, (Pul), . . .	Ulmus wallichiana	Do.
244	Shoes, (Polas), . . .	Grass,	Kulu.
249	Brush, (Buhura), . .	Phoenix dactylifera	Multan.
250	Tatti, (Khus), . . .	Anatherum muricatum	Do.
251	Fans, (Punkhas), . .	Phoenix dactylifera	Do.

34. *E. M'A. Moir, Esq., Conservator of Forests*, School Circle, Dehra Dun, N. W. P.

CLASS II.

Section 1 (*b*). Section of Dhauli (Woodfordia floribunda). Section of Semla (Bauhinia retusa). Section of Maljhan (Bauhinia Vahlii). Plank of Chir (Pinus longifolia). Section of Millettia auriculata. Block of box-wood (Buxus sempervirens) from Jaunsar.

Section 3. Portion of broad gauge Deodar (Cedrus deodara) railway sleeper. Portion of metre gauge Deodar (Cedrus deodara) railway sleeper.

Section 7. Basket used for winnowing grain.

Section 8. Collection of 34 fancy wooden articles. Combs made of wood of Haldoo.

Section 10. Bamboo; Kawar, used for carrying holy water; Ganga Sagar, Botal, carried in hand by pilgrims; Basket.

Section 11. Bark of Sal (Shorea robusta). Bark of Sandan (Ougeinia dalbergioides). Leaves of Bakli (Anogeissus latifolia). Bark of Kikar (Acacia arabica). Bark of Amaltas (Cassia fistula). Bark of Sain tree (Terminalia tomentosa). Fruit of Ritha (Sapindus detergens), soap-nut.

Section 12. Flowers of Dhak (Butea frondosa). Dust of Rohni (Mallotus philippinensis). Flowers of Dhauli (Woodfordia floribunda). Bark of Lodh (Symplocos cratægoides). Powder of fruit of Singhara (Trapa bispinosa). Bark of Euonymus tingens. Bark of Kushmorah (Berberis sp.).

Section 13. Bark of Chir (Pinus longifolia).

Section 14. Collection of ropes, floor matting, etc., manufactured at the Dehra Dún Jail. Munj grass (Saccharum munja), and ropes made therefrom. Fibre and fishing-line made from the bark of the Marsdenia tenacissima. Bark and ropes made from Maljhan (Bauhinia Vahlii). Ropes made of fibre of Munj grass (Saccharum munja). Ropes made from fibre of Sunn (Crotolaria juncea). Rope and fibre of Biul (Grewia oppositifolia). Instrument used for separating Aloe fibre at the Dehra Dún Jail. Rope made from bark of Godgudala (Sterculia villosa).

Sections 14 and 15. Babar grass (Spodiopogon angustifolius), and rope made from same.

Section 15. Bundle of paper made from bark of Daphne papyracea. Bark of Bhuj, Himalayan birch (Betula bhojpattra).

Section 16. Resin of Chir tree (Pinus longifolia), Deodar oil (Cedrus deodara), from the forests of the Tons Division. Resin of Kail (Pinus excelsa), from ditto. Resin of Morinda (Abies Webbiana). Resin of Sal (Shorea robusta). Resin of Semla (Bauhinia retusa). Bans-lochan or Tabashier (Bambusa arundinacea). Turpentine distilled from Chir (Pinus longifolia).

Section 18. Roots of small plant called Utis (Aconitum heterophyllum).

Seeds of Dhak (Bauhinia retusa) tree. Seeds of Indar Jau (Holarrhena antidysenterica). Fruit of Bel (Ægle marmelos). Hans Raj (Adiantum venustum). Fruit of Har (Terminalia chebula). Fruit of Bhaira. Fruit of Aula (Phyllanthus emblica). Fruit of Rhoni (Mallotus philippinensis). Fruit of Malkakni (Celastrus paniculatus).

Section 19. Charcoal manufactured from Kail (Pinus excelsa).

Section 21. Seeds of the Edible Pine (Pinus graduana). Pods of Jat Morang (Colosanthes indica). Seeds of Ratti Bel (Abrus precatorius). Seeds of Bichu. Seeds of Hymenodictyon excelsum. Seeds of Mainphal (Randia dumetorum). Seeds of Nyctanthes arbor-tristis. Seeds and pods of Khair (Acacia catechu). Seeds of Kydia calycina. Fruit of Zizyphus xylopyra. Fruit of Bakain (Melia azadirachta). Pods of Holarrhena antidysenterica. Pods of Stereospermum suaveolens. Pods of Amaltas (Cassia fistula). Pods of Maljhan (Bauhinia Vahlii). Pods of Jhinhira (Bauhinia racemosa). Pods of Dudhi (Wrightia tomentosa). Fruit of Bæl (Ægle marmelos). Fruit of Thanella (Gardenia turgida). Pods of Katta Jhinjora (Bauhinia malabarica).

CLASS III.

Section 3. Parasitic growth of Loranthus longiflorus.

Section 6. Plank of Tun (Cedrela toona). Sal wood (Shorea robusta), perforated by borer.

CLASS V.

Section 1. Seven photographs of forest scenery in the North-Western Himalaya.

CLASS VI.

Section 1. Reports on Sleeper Slides and Tramways. Reports on Reboisement operations in the Hautes and Basses Alpes.

35.—*Major Campbell Walker, Conservator of Forests,* SOUTHERN CIRCLE, MADRAS, *through A. W. Peet, Esq., District Forest Officer,* COIMBATORE, MADRAS.

Class II.—Section 1. COLLECTION OF TIMBER SPECIMENS.

Name of Specimen, English or Tamil.	*Botanical Name.*
1. Karu. Vallam,	Acacia arabica.
2. Rosewood,	Dalbergia latifolia.
3. Sandalwood,	Santalum album.
4. Nonah Marum,	Morinda citrifolia.
5. Nonah Marum,	Do.
6. Karam Thombi,	Diospyros melanoxylon.
7. Mango,	Mangifera indica.
8. Satinwood,	Chloroxylon swietenia.
9. Teak,	Tectona grandis.
10. Karungali,	Acacia sundra.

Name of Specimen, English or Tamil.	*Botanical Name.*
11. Vella Nagai, . . .	Anogeissus latifolia.
12. Vella Kadambai, . . .	Nauclea cadamba.
13. Vapam, ...	Azadirachta indica.
14. Vella Valam, . . .	Acacia leucophlœa.
15. Vengay, ...	Pterocarpus marsupium.
16. Wagay, ...	Albizzia lebbek.
17. Manja Kadambai, . .	Nauclea cordifolia.
18. Karru Mardu, . . .	Terminalia tomentosa.
19. Poochi Kottai, (Soap Nut), .	Sapindus emarginatus.
20. Attimarum, ...	Ficus glomerata.
21. Karum Thovarai, . .	Diospyros melanoxylon.
22. Tamarind, ...	Tamarindus indica.
23. Vella Maram, (Wood Apple),	Feronia elephantum.
24. Tanakku, . . .	Cochlospermum gossypium.
25. Acha, ...	Hardwickia binata.
26. Palamaram, . . .	Wrightia tinctoria.
27. Onjal, ...	Albizzia amara.
28. Kadukkai.	Terminalia chebula.
29. Devadarum, . . .	Sethia indica.
30. Selupa Maram, . . .	Eleodendron Roxburghii.
31. Nellikoy, ...	Emblica officinalis.
32. Sela Vaghai, . . .	Albizzia odoratissima.
33. Ayah Maram, . . .	Ulmus integrifolia.
34. Myladi, ...	Vitex altissima.
35. Vellallan, ...	
36. Vukkana, ...	Diospyros cordifolia.
37. Marda, ...	Terminalia alata.
38. Kangilium, (Black Dammer),	Canarium strictum.
39. Kat illi micham maram, (Wild Lime), ...	Atalantia monophylla.
40. Yellandai Maram, (Snake wood),	Zizyphus jujuba.
41. Ettini maram, . . .	Strychnos nux vomica.
42. Atti, ...	Bauhinia racemosa.
43. Alanji Maram, . . .	Alangium lamarkii.
44. Odia Maram, . . .	Odina wodier.
45. Pinne, ...	Calophyllum inophyllum.

Class II.—Section 7. BASKET AND WICKER WORK.

46. Bamboo sling basket, made of Odai, ...	Arundinaria.
47. Bamboo Mat, . . .	Bambusa arundinacea.
48. Odai Mat, ...	Arundinaria.
49. Bamboo Basket, . . .	Bambusa arundinacea.
50. Bamboo Fan, . . .	Do.
51. Bamboo Sieve, . . .	Arundinaria.

Name of Specimen, English or Tamil.	*Botanical Name.*
52. Korai Mat, ...	
53. Kalka Kodi Basket, (creepers),	
54. Models of Forest Guards' Hut or House, . . .	

Class II.—Section 10. BAMBOOS, CANES, REEDS, AND MANUFACTURES.

55. Bamboo Canes, . . .	Bambusa arundinacea.
56. Bamboo Drinking Cups, .	Do.
57. Bamboo Bows and Arrows, .	Do.
58. Bamboo Spoons, . . .	Do.
59. Bamboo Eating Vessels, .	Do.
60. Bamboo Head and Ear Ornaments, ...	Do.
61. Rattan Canes, . . .	Calamus rotang.

Class II.—Section 11. TANNING SUBSTANCES, etc.

62. Saffron for dyeing, . .	Curcuma longa.
63. Vambadam Bark, . . .	Ventilago maderaspatana.

Class II.—Section 14. FIBRE AND FIBROUS PLANTS.

64. Kul Ichi fibre, . . .	Ficus tomentosa.
65. Kathalai Munjie, . . .	Agave, American aloe fibre.
66. Marul Manjie, . . .	Sanseviera zeylanica.
67. Marul Manjie string, . .	String of do.
68. Do. plant, . .	Plant of do.
69. Vadathalum fibre, . .	Dichrostachys cinerea.
70. Velvalam fibre, . . .	Acacia leucophlœa.
71. Velli Muthu fibre, . .	Cæsalpinia elata.
72. Yerukkalai fibre, . . .	Calotropis gigantea.
73. Sanhittee fibre, . . .	
74. Athi fibre, ...	Bauhinia racemosa.
75. Thadasoo fibre, . . .	Grewia tiliæfolia.
76. Valumpuri fibre, . . .	Helicteres isora.
77. Vaccai nar stump, . .	Sterculia villosa.
78. Vaccai nar (fibre), . .	Do.
79. Vaccai nar (drag-rope), . .	Do.
80. Vaccai nar (string), . .	Do.
81. Vaccai nar (rope), . .	Do.
81*a*. Pulimanjie (fibre), . .	Hibiscus cannabinus.
81*b*. Sunn hemp, . . .	Crotolaria juncea.
81*c*. Palmyra fibre, . . .	Borassus flabelliformis.

Class II.—Section 16. GUM, RESIN, GUM-ELASTIC.

Name of Specimen, English or Tamil.	*Botanical Name.*
82. White Dammer, . . .	Vateria indica.
83. Vengai Pal (Gum kino), .	Pterocarpus marsupium.
84. Black Dammer, . . .	Canarium strictum.
85. Onjai pisanu gum, . .	Albizzia amara.
86. Kambli pisanu (Dichamaley),	Gardenia gummifera.

Class II.—Section 17. WOOD-OIL, etc.

87. Wax, ...

Class II.—Section 18. DRUGS, FOOD, AND SPICES.

88. Maddippal, . . .	Ailanthus malabarica.
89. Cardomoms, . . .	Elettaria cardomomum.
90. Saffron for curry, . .	Curcuma longa.
91. Honey, ...	
92. Roots, Hillmen's food, .	
93. Vethalai Wodi Kelangu, .	Dioscorea.
94. Nar Kelangu, . . .	Do.
95. Mullevallee root, . .	
96. Nanaru fruit, . . .	
97. Tamarind fruit, . . .	Tamarindus indica.

Class II.—Section 21. CONES, SEEDS, FRUITS OF TREES AND SHRUBS.

98. Pepper, ...	Piper nigrum.
99. Shika, ...	Acacia concinna.
100. Saya Vethai (Arnatto seeds).	Bixa orellana.
101. Rattan seeds, . . .	Calamus rotang.
102. Gall-nut seed, . . .	Terminalia chebula.
103. Soap nut, ...	Sapindus emarginatus.
104. Teak, ...	Tectona grandis.
105. Marda, ...	Terminalia.
106. Purambai, ...	Prosopis spicigera.
107. Kara Konnai, ...	Cassia fistula.
108. Anthee, ...	Bauhinia racemosa.
109. Karungally, ...	Acacia sundra.
110. Vengai, ...	Petrocarpus marsupium.
111. Vagai, ...	Albizzia lebbek.
112. Vella Nagai, ...	Anogeissus latifolia.
113. Manja Kadambai, . .	Nauclea cordifolia.
114. Tamarind, ...	Tamarindus indica.
115. Vella Vallum, ...	Acacia leucophlœa.

Name of Specimen, English or Tamil.	*Botanical Name.*
116. Snake Wood, . . .	Strychnos nux vomica.
117. Margosa, (Neem), . .	Azadirachta indica.
118. Malavemboo, . . .	Acrocarpus fraxinifolia.
119. Vuphanai, ...	Diospyros cordifolia.
120. Poongai, ...	Pongamia glabra.
121. Kumbli pisin, . . .	Careya arborea.
122. Wild Moringa, . . .	Moringa pterygosperma.
123. Oongai, ...	Albizzia amara.
124. Poothalai, ...	Givotia rottleriformis.
125. Tulip, ...	Thespesia populnea.
126. Chemblican or Devadaroo, .	Sethia indica.
127. Vadathalan, . . .	Dichrostachys cinerea.
128. Selluppa, ...	Elæodendron roxburghii.
129. Vellahavu, ...	Feronia elephantum.
130. Yellandai, ...	Zizyphus jujuba.
131. Kodavallam, . . .	Acacia planifrons.
132. Viralee, ...	A. latronum.
133. Coondoomanee, . . .	Abrus precatorius.
134. Araram, ...	Cassia auriculata.
135. Pamrai, ...	Borassus flabelliformis.

Class II. Section 19. CHARCOAL FOR GUNPOWDER.

136. Eroobalu Charcoal, . .	Calotropis gigantea.
137. Dholl plant do., . . .	Cajanus indica.

Class II.—Section 18. DRUGS, etc.

138. Tabashier, ...	From the nodes of Bambusa arundinacea.

36.—*W. C. Hayne, Esq., District Forest Officer,* TINNEVELLY, MADRAS.

Class II.—TIMBER. Section 1 (*a*).—INDIGENOUS.

1. Balanocarpus utilis, (Karumkongi), .	For building and carts.
2. Bassia sp., (Ilupoi), . . .	Do.
3. Filicium decipiens, (Atadali).	
4. Garcinia sp., (Kodukapuli).	
5. Gluta Travancorica, (Shencurindi).	
6. Hardwickia pinnata, (Eunai-Kolavu),	Building and cart furniture.
7. Heritiera papilio, (Savundalai unum),	Do.
8. Mesua ferrea, (Nagu), . . .	Carts, etc.
9. Podocarpus latifolia, (Narumbila), .	Do.
10. Poeciloneuron pauciflorum, (Púdangalli).	Do.
11. Terminalia arjuna, (Vel marudu), .	Do.

12.	Vitex altissima, (Mayalai),	Carts, etc.
13.	Unknown, (Sempagapalai),	Do.
14.	do. (Malai Virali),	Do.
15.	do. (Kanja),	Do.
16.	do. (Sokala),	Do.
17.	do. (Palvadindan).	

GUMS.—Section 16.

1.	Acacia arabica, (Karuvelam),	Used as gum.
2.	Anogeissus latifolia, (Vekali),	Do.
3.	Azadirachta Indica, (Vembu),	Do.
4.	Balanocarpus utilis, (Karunkongi),	Do.
5.	Bombax Malabaricum, (Mullilavu).	
6.	Buchanania latifolia, (Mudama).	
7.	Canarium strictum, (Karuta Kongilium),	Used as a mordant and dammer.
8.	Feronia elephantum, (Vita),	Used as a gum.
9.	Hardwickia pinnata, (Ennai Kolavu),	Do.
10.	Mesua ferrea, (Naugu),	Do.
11.	Mimusops Indica, (Ulakapolai),	Do.
12.	Pterospermum sp., (Pulavu),	Do.
13.	Pterocarpus marsupium, (Vengai),	Used medicinally.
14.	Schleichera Trijuga (?), (Pulichi).	
15.	Unknown (Vaimaram),	Do.
16.	do. (Kila),	Do.
18.	do. (Murungai),	Do.
19.	do. (Seutanaku),	Do.

WOOD-OIL.—Section 17.

1.	Hardwickia pinnata, (Eunai Kolavu),	Do.

37.—*The Officiating Conservator of Forests,* PEGU CIRCLE, RANGOON.

Class I.—PRACTICAL FORESTRY.

SECTION 1.

1 and 2. Dah used by foresters according to nature of work.
3. Axe used for light felling.
4. Gear for elephants used in Burma for dragging timber.

SECTION 2.

5. Model of a Karenteh, or structure for dwelling in, used by Toungya cultivators or nomadic hillmen.
6. Model of a raft as constructed in the rivers of Burma.

Class II.—FOREST PRODUCE, RAW AND MANUFACTURED.

Section 1.

7. Sections of the following indigenous woods—(1.) Teak (Tectona grandis); (2.) Pymma (Lagerströmia flos reginæ); (3.) Thingan (Hopea odorata); (4.) Sit (Albizzia procera); (5.) Thitsie (Melanorhœa usitata); (6.) Zinbyun (Dillenia pentagyna; (7.) Thitto (Sandoricum indicum); (8.) Sha (Acacia catechu).
8. Railway sleepers of the following woods, two of each kind—(1.) Pyinkado (Xylia dolabriformis) marked 1 and 2; (2.) Pymma (Lagerströmia flos reginæ) marked 3 and 4; (3.) Thingan (Hopea odorata) marked 5 and 6.
9. Planks of—(1.) Teak (Tectona grandis); (2.) Pymma (Lagerströmia flos reginæ); (3.) Thitto (Sandoricum indicum); (4.) Thingan (Hopea odorata).

9*a*. Small sections, viz.—

No. 7/1*a* is from a specimen cut in the dry season of 1882-83 from a teak tree in a teak Toungya plantation started in 1870, Thitcho forest reserve (Tharuwaddy Division), and which has been burnt annually.

The soil is sandy and the ground level.

No. 7/1*b* is a section of a small log obtained from a teak tree in a Toungya planted in 1877 in the Thonezeh reserve (Tharawaddy Division), the soil of which is humus, and ground sloping. The area was never burnt.

Nos. 7/1*c* and 7/1*d* are sections from specimens cut in 1882 from trees in the Magayee plantations of 1872 and 1874 in the Rangoon Division.

Section 6.

9*b*. The following pieces of carving in teak—three chimtheys (literally, dead lions); one small floral bracket; two floral door panels; two figure panels 14″ × 10″; two figure panels 12″ × 9″; two figure panels 5″ × 5″; two figure panels 14″ × 2″.

Section 10.—Bamboos.

10. Bundles of bamboos of the following varieties—(1.) Wabo (Dendrocalamus brandisii); (2.) Palan-pinan-wa (Bambusa nana); (3.) Kayinwa; (4.) Kyathoungwa (Bambusa polymorpha); (5.) Myinwa (Dendrocalamus strictus); (6.) Tinwa (Cephalostachyum pergracile); (7.) Wapyu (Gigantochloa albociliata).
11. Canes of the following species—(1.) Yamata (Calamus latifolius); (2.) Thine (Calamus erectus); (3.) Kyenka (Calamus fasciculatus); (4.) Kyennee (Calamus guruba); (5.) Kainban (Calamus arborescens); (6.) Wanthaw kyain (Calamus sp.).
12. Six lacquered waterproof buckets used for drawing water.

13. One set Pahs, or baskets containing four; woven of the leaf of the Borassus flabelliformis (Palmyra Palm).
14. Mats plaited from the split stems of a species of Maranta, probably M. dichotoma.

SECTION 11.

15. Cutch, or the product of the Acacia catechu, in three qualities.
16. Bark of Rhizophora mucronata, used for tanning.

SECTION 14.

17. Fibres of the following—(1.) Musa textilis; (2.) Wetshaw (Sterculia colorata); (3.) Ketlan shawbyu (Sterculia versicolor); (4.) Shaw-wa (Sterculia ornata); (5.) Donshaw (Sterculia sp.); (6.) Thimbau (Hibiscus tiliaceus); (7.) Chinbaungyi (Hibiscus sp.); (8.) Kat sine (Urena lobata); (9.) Onhne (Streblus asper); (10.) Thanat (Cordia myxa); (11.) Nabè (Odina Wodier); (12.) Letpan (Bombax malabaricum); (13.) Didu (B. malabaricum sp.); (14.) Dwani (Eriolæna candollei); (15.) Dwabok (Kydia calycina); (16.) Petwoon (Berrya mollis).

SECTION 16.

18. Milk of the Chavannesia esculenta, known as Caoutchouc.

SECTION 17.

19. Oil of the Dipterocarpus alatus, used instead of linseed in mixing with paints and also as a varnish.
20. 35 lbs. Arabian coffee grown on the Thandaung Cinchona Plantation, Toungoo, altitude 4200 ft.

Class V.—ILLUSTRATION OF FORESTRY.

21. Photographs of—(1.) Saw-mill, Dulla, site of the Bombay Burmah Trading Corporation, Limited—two views; (2.) Elephants at work in the same yard—two views; (3.) Elephants at work in the Government Timber Depôt, Ahlone; (4.) View of public sale of timber at Government Timber Depôt; (5.) View of a Steam-launch towing rafts of timber in Rangoon river.

38.—*T. H. Aplin, Esq., Deputy-Conservator of Forests,* SALWEEN DIVISION, MOULMEIN.

BARKS.

1. Ma-lwa, (Spathodea stipulata).
2. Pet-than, (Heterophragma adenophylla).
3. Bwet-Gyin, (Bauhinia variegata).
4. Na-bai, (Odina wodier).
5. Palan, (Bauhinia racemosa).
6. Dong-shaw.
7. Shaw-nee, (Sterculia villosa).
8. Dwa-nee, (Eriolœna Candollei).

9. Sway-daw, (Bauhinia monandra).
10. Myouk-layka, (Bauhinia ornata).
11. Mhine-āh, (Cordia sp.).
12. Sa-yaw, (Excœcaria agallocha).
13. Saru, (Terminalia bialata).
14. Set-Pan, (Bombax malabaricum).
15. Shuw-wā, (Sterculia ornata).
16. Dee-doo, (Bombax insigne).
17. Tha-nat, (Cordia myxa).
18. Thinban, (Hibiscus tiliaceus).
19. Shonk-yo, (unknown).
20. Ban-buay, (Careya arborea).
21. Shaw-Byoo, (Sterculia versicolor).
22. Eng, (Dipterocarpus tuberculatus).
23. Kyay, (Barringtonia racemosa).
24. Dwa-Boke, (Kydia calycina).
25. Wet Shaw, (Sterculia colorata).
26. Nyoung lan, (Ficus sp. ?).
27. Ma-oo, (Sarcocephalus Cadamba).
28. Nyoung-Kat, (Ficus sp. ?).

TIMBER LOGS.

1. Padouk, (Pterocarpus indicus).
2. Thitya, (Shorea obtusa).
3. Thitkadœ, (Cedrela toona).
4. Thitka, (Pentace Burmanica).
5. Engyin, (Shorea Siamensis).
6. Anan, (Fagrœa fragrans).
7. Karaway, (Cinnamomum sp.).
8. Kanzo, (unknown).

39.—*H.H. the Maharajah of Travancore, Madras.*

TIMBERS.

Diospyros melanoxylon,	Ebony.
Sethia indica,	Red Cedar.
	Kanakaitha.
Dalbergia latifolia,	Blackwood.
	Kada Marum.
Terminalia paniculata,	Marda.
Nauclea cadamba,	Manja cadamba.
Tectona grandis,	Teak.
Bignonia chelonoides,	Padri Marum.
Terminalia coriacea,	Tembavo.
Artocarpus hirsuta,	Anjelee.
Mangifera indica,	Mango.
Albizzia odoratissima,	Karinthakara.
Artocarpus integrifolius,	Jack Tree.
Lagerströmia microcarpa,	Ventek.
Shorea tumbuggaia,	Tembœum.
	Carimgala.
Chickrassia tabularis,	Aglaymarum.
Pterocarpus marsupium,	Vengay.
Lagerströmia reginæ,	Poomarda.

Two Blocks of Beeswax, bleached and unbleached.
Four Varieties of Cardamom.

IVORY WORK.

	Value.	
Ivory Tankard on Silver Stand,	Rs. 176	0
Two Carved Ivory Hand-Mirrors, each	41	0
Two Carved Ivory Hand-Mirrors, each	36	0
One Ivory Comb,	23	0
An Ivory Picture-Frame,	76	0
An Ivory Paper-weight (Nair Girl),	79	0
Two Glove-stretchers, each	29	0
One Paper-weight (Tapir),	15	0
One Umbrella Handle,	9	8
One Ivory Paper-weight (Pelican),	23	0
One Ivory Paper-weight (Boa-constrictor),	9	8
One Ivory Paper-weight (Snake),	5	4
One Ivory Book-Rack,	39	0
One Ivory Carving representing a Malayah lady at her Toilet,	23	8
Two Paper-cutters (Elk in the coils of a Boa), each	16	8
One Ivory Paper-cutter (Rishi at penance),	15	8
One Ivory Bird,	18	0
One Ivory Bird,	19	0
One Ivory Caladium,	5	8
One Pair Ibex Horns Mounted, each	28	0
One Hand-Mirror with the form of Ganapathy carved,	30	8
One Hand-Mirror (Herd of Elephants),	28	8
One Paper-cutter (Design, Areca Tree),	16	5
Four Glove-stretchers, at Rs.18 : 12 each,	75	0
One Paper-cutter (lady decking herself with flowers),	15	3
One Paper-cutter (grape vine),	7	8

40.—*G. Hadfield, Esq., Assistant Conservator of Forests,* NILAMBUR.

TEAK SPECIMENS FROM GOVERNMENT PLANTATIONS.

No.	Planted.		Extreme length.			
1.	1844,	Grown in alluvial soil,	100 feet,	93 ins. in circumference at base.		
2.	1845,	,, ,,	98 ,,	70	,,	,,
3.	1846,	,, ,,	99 ,,	72	,,	,,
4.	1847,	,, ,,	103 ,,	100	,,	,,
5.	1848,	,, ,,	98 ,,	68	,,	,,
6.	1849,	,, ,,	96 ,,	66	,,	,,
7.	1850,	,, quartz & laterite,	91 ,,	66	,,	,,
8.	1851,	,, ,,	92 ,,	64	,,	,,
9.	1852,	,, laterite	89 ,,	65	,,	,,
10.	1853,	,, ,,	87 ,,	63	,,	,,
11.	1854,	,, alluvial	96 ,,	67	,,	,,
12.	1855,	,, laterite	71 ,,	54	,,	,,
13.	1856,	,, alluvial	82 ,,	57	,,	,,
14.	1857,	,, laterite	86 ,,	50	,,	,,
15.	1858,	,, alluvial	67 ,,	68	,,	,,

No.	Planted.			Extreme length.			
16.	1859,	Grown in alluvial soil,		83 feet,	54 ins.	in circumference at base.	
17.	1860,	,,	,,	84 ,,	58	,,	,,
18.	1861,	,,	,,	78 ,,	58	,,	,,
19.	1862,	,,	,,	77 ,,	51	,,	,,
20.	1863,	,,	,,	85 ,,	62	,,	,,
21.	1864,	,,	,,	78 ,,	60	,,	,
22.	1865,	,,	,,	72 ,,	45	,,	,,
23.	1866,	,,	,,	78 ,,	58	,,	,,
24.	1867,	,,	,,	70 ,,	50	,,	,,
25.	1868,	,,	,,	82 ,,	48	,,	,,
26.	1869,	,,	,,	75 ,,	40	,,	,,
27.	1870,	,,	,,	65 ,,	47	,,	,,
28.	1871,	,,	,,	72 ,,	45	,,	,,
29.	1872,	,,	,,	68 ,,	36	,,	,,
30.	1873,	,,	,,	60 ,,	31	,,	,,
31.	1874,	,,	,,	56 ,,	23	,,	,,
32.	1875,	,,	,,	32 ,,	26	,,	,,
33.	1876,	,,	,,	33 ,,	22	,,	,,

41.—*W. B. Blaikie, Esq.*

3 Hog Spears; Bombay.
1 Kookrie Knife; Bengal.

42.—*Dr. Sanderson.*

Specimens of Chinchona Bark; Mysore.

43.—*George Hight, Esq., Bombay Forest Department.*

One Dendrometer for measuring the height of Trees.

44.—*The Conservator of Forests,* SIND CIRCLE, BOMBAY.

1. Two Boxes of Sar Grass Stalks, braced with wood, and bound with raw goat-hide.
2. Two Boxes of Sar Grass Stalks, braced with wood, and bound with raw goat-hide (smaller).
3. Baskets of Palm Leaf, with lids.
4. Do. do. (smaller), without lids.
5. Sieves for Sifting Flour, made each of the end of a date palm-leaf.
6. Flat Trays for Winnowing Grains by pouring from a height, made as Nos. 1 and 2.
7. Galls of Asri (Tamarix Orientalis).

8. Chick or Curtain of Sar Stalk, used as a blind, rolling up.
9. Chick or Screw of Sar Grass Tops, used as a shelter by poor people.
10. Pua of Sar Grass Leaves, used for various purposes, such as roofing of temporary and permanent buildings under tiles or mud plaster.

45.—*Procter & Co.*, 428 *Oxford Street, London, and Bombay.*

Carved Blackwood Furniture. Carved Maulmein Teak, Perforated Panels. Carved Balsar, Perforated Mosque Window. Lacker Wood Ornaments. Sandalwood and Ivory Inlaid Boxes. Burmese Feast amongst Palms on Cloth. Jeypore Printed Cotton Cloths. Punjab Embroidered Tapestry.

46.—*The Secretary of State for India.*

PHOTOGRAPHS OF INDIAN FOREST TREES.

1. Champah Trees, (Michelia champaca).
2. Sal Tree, (Shorea robusta).
3. Simul Tree, (Bombax heptaphyllum).
4. Gumiar Tree and the Salai Tree, (Boswellia thurifera).
5. Neem Tree, (Melia azadirachta).
6. Toon Tree, (Cedrela toona).
7. Goorar, (Sterculia urens).
8. Mango, (Mangifera indica).
9. Blackwood Tree, (Dalbergia latifolia).
10. Beeja Tree, (Pterocarpus marsupium).
11. Amaltas, (Cassia fistula).
12. Tamarind Tree, (Tamarindus indica).
13. Unjan Tree, (Hardwickia binata).
14. Saj, (Terminalia tomentosa).
15. Kahna Tree, (Terminalia arjuna).
16. Dowra Tree, (Anogeissus acuminata).
17. Jamoor, (Eugenia jambolanum).
18. Mahua Tree, (Bassia latifolia).
19. Lussora, (Cordia myxa).
20. Teak Tree, (Tectona grandis).
21. Sacred Peepul Tree, (Ficus religiosa).
22. Paker Tree, (Ficus infectoria).
23. Banian Tree, (Ficus Bengalensis).
24. Gooler Tree, (Ficus racemosa).
25. Common Palm, (Phœnix sylvestris).
26. Hurra Tree, (Terminalia chebula).
27. Wild Mango and Mahua Tree, (Mangifera indica and Bassia latifolia).

28. Wild Mango Grove.
29. Kalma Tree, (Terminalia arjuna).
30. Sal Tree, (Shorea robusta).
31. Rawan Tree.
32. Rukhado Tree.

47.—*Lieutenant-General Douglas Hamilton.*

Drawings of Hill and Forest Scenery in Madras.

48.—*Sir Philip Cunliffe Owen, C.B., K.C.M.G., C.I.E.*

Fifty Panels of Bolsar Teak wood (Tectona grandis), made by the Ahmedabad Wood Carving Co. Works. Mujzumbhai Hattesing, manager.

49.—*Alexander Hunter, Esq., M.D., late Superintendent School of Arts, Madras.*

1. Carved Teapoy in Satinwood, (Chloroxylon swietenia), Rajpoot pattern.
2. Carved Teapoy in Satinwood, (Chloroxylon swietenia), Hindoo pattern; School of Arts, Madras.
3. Carved Satinwood Picture Frame. Design from Momordica charantia.
4. Carved Satinwood Picture Frame, (Bitter Cucumber).
5. Carved Rosewood Workbox, (Dalbergia latifolia).
6. Carved Ebony Box, (Diospyros ebenaster); Ceylon.
7. Do. for Coins; School of Arts, Jaffua, Ceylon.
8. Do. Native pattern; Colombo, Ceylon.
9. Carved Sandalwood Box, (Santalum album); Honore, Madras Presidency.
10. Box of Palmyra Palm, (Borassus flabelliformis), containing useful woods of Ceylon.
11. Small Circular Table of Kino Wood, (Pterocarpus marsupium); Burmah.
12. Sets of Tools for modelling in Clay and Wax; hard woods of Demerara.
13. Sets of Tools for modelling in Clay and Wax; hard woods of India.
14. Uses of the Yew-tree Wood, (Taxus baccata), for Salad Spoons and Forks, Paper Knives, Rulers, Music Pointers, Flat Paper Folders, and Letter and Account Boards.
15. Drawers containing fancy woods of Juniper, (Juniperus communis), Olive Wood, (Olea europæa), Whin.
16. Carved Sandalwood Frame, (Santalum album).
17. Do. School of Arts, Madras.

50.—*J. C. Hannyngton, Esq., Resident of Travancore.*

One Slab of Sago Palmwood, polished. One specimen of Sago Palm Leaf Fibre, a single strand of which landed a fifteen-pound fish. One Slab of Areka Palmwood. One very powerful Crossbow of Areka Palmwood, with apparatus for shooting fish.

51.—*Miss Douglas.*

Pith Model of Hindu Temple in South India, (Æschynomene paludosa).

52.—*John Martin, Esq.*

Hat of Leaves and Root of Bamboo.
Two Fans of do.

53.—*T. Sheffield, Esq., Assistant Conservator of Forests, District Forest Officer, North Arcot, Madras.*

Class II.—Section 1. COLLECTIONS OF TIMBER SPECIMENS AND ORNAMENTAL WOODS.

(*a.*) INDIGENOUS OR NATURALISED.

1.	Pterocarpus santalinus, . .	Rakta-chandan, (Red Sanders).
2.	Santalum album, . . .	Chandan or Gandham, (Sandal-wood).

Section 6. WOOD-CARVING.

3.	Image of Vishnu of Pterocarpus santalinus, ...	Redwood.

Exhibited by J. S. Gamble, Esq., Conservator of the NORTHERN CIRCLE, MADRAS FOREST DEPARTMENT.

Class I.—PRACTICAL FORESTRY.

No exhibits.

Class II.—FOREST PRODUCE, RAW AND MANUFACTURED.

Section 1.—Collections of Timber Specimens and Ornamental Woods.

(*a.*) INDIGENOUS OR NATURALISED.

(*From Ganjam District—J. S. Gamble, Esq., Conservator of Forests.*)

1. Shorea robusta, ... The sál tree. Salwa, Uriya.
   1 slab, from Gumsúr forests.
2. Terminalia tomentosa, . . . Sahajo, Uriya.
   2 slabs, specimens from Gumsúr and Kurcholy forests.
3. Diospyros melanoxylon, . . Ebony. Kendhu, Uriya.
   1 slab, specimen from Surada forests.
4. Soymida febrifuga, ... Sohan, Uriya.
   1 slab, specimen from Gumsúr forests.
5. Anogeissus latifolia, ... Dhau, Uriya.
   1 slab, specimen from Gumsúr forests.
6. Chloroxylon swietenia . . . The satinwood. Bheru, Uriya.
   1 slab, specimen from Kurcholy forests.
7. Limonia acidissima, ... Bhenta, Uriya.
   1 slab, specimen from Kurcholy forests, a remarkably large specimen for the ordinary size of the tree.

(*From the Anantapur District—J. H. B. Brougham, Esq., Assistant Conservator of Forests.*)

1. Acacia arabica, ... The babúl tree. Nallatumma, Telugu.
   1 plank from the Gooty plantations.

(*From the Cuddapah District—A. W. B. Higgens, Esq., C.S., Deputy-Conservator of Forests.*)

1. Pterocarpus santalinus, . . The red sanders. Yerrachandanam, Telugu.
   (i) 1 slab from the stem of the tree.
   (ii) 8 sections from a tree grown in the Kodúr plantation,

planted in 1865. Sections taken in order to illustrate the girth at various heights: each section is the lowest foot of eight five-feet sections of the tree, leaving a stump of 9 inches. The mean girths are—

No. 1, . .	33 inches.	No. 5, . .	20 inches.
„ 2, . .	27 do.	„ 6, . .	17 do.
„ 3, . .	24 do.	„ 7, . .	15 do.
„ 4, . .	22 do.	„ 8, . .	12 do.

2. Hardwickia binata, . . . Yépi, Telugu.
   1 slab from the stem.
3. Shorea tumbuggaia, . . . Thamba, „
   1 section of stem.
4. Mimusops indica, . . . Pala, „
   1 section of stem.
5. Mimusops elengi, . . . Pogada, „
   1 section of stem.
6. Acacia sundra, ... Sandra, „
   1 section of stem.
7. Dichrostachys cinerea, . . . Veluthuru, „
   1 section of stem.
8. Strychnos potatorum, . . . Chilla, „
   1 section of stem.
9. Cassia fistula, ... Rela, „
   1 section of stem.

(*From the Nilgiri District—Lieutenant-Colonel R. S. Jago, Deputy-Conservator of Forests.*)

1. Tectona grandis, ... Teak. Tekku, Tamil.
   1 slab from South-East Wynaad forests.
2. Dalbergia latifolia, . . . Blackwood or rosewood. Iti, Tamil.
   1 slab from South-East Wynaad forests.

(*b.*) EXOTIC.

(*From the Nellore District—F. d'A. Vincent, Esq., Deputy-Conservator of Forests.*)

Sections of Casuarina equisetifolia from trees grown in the coast plantations :—

I. . .	1 year old.	VI. . .	6 years old.
II. . .	2 years old.	VII. . .	7 do.
III. . .	3 do.	VIII. . .	8 do.
V. . .	5 do.	IX. . .	9 do.
		X. . .	10 do.

(*From the Nilgiri District—Lieutenant-Colonel R. S. Jago, Deputy-Conservator of Forests.*)

Sections of Eucalyptus globulus from trees grown in plantations :—

No. I.	from 'Aramby' plantation	.	20 years old.
„ II.	„ 'Old Forest' do.	.	10 do.
„ III.	„ 'Norwood' do.	.	10 do.
„ IV.	„ 'Bathri' do.	.	15 do.

Sections of Acacia melanoxylon from Ootacamund :—

No. I.	. . . . .	15 years old.
„ II.	. . . . .	10 do.
„ III.	. . . . .	5 do.

Section 2. Woods used for Ordnance.

No special exhibits, but attention is invited to Shorea robusta in Section 1, which is frequently used for gun-carriages, as well as to Dalbergia latifolia, Hardwickia binata, and Soymida febrifuga.

Section 3. Woods used for Railway Purposes.

See Section 1.

Shorea robusta, ...	In regular use in Northern India for sleepers.
Terminalia tomentosa, . . .	Frequently used.
Anogeissus latifolia, . . .	Sometimes used, and likely to be more in demand before long.
Hardwickia binata, . . .	Sometimes used, but almost too hard.
Tectona grandis, ...	Used, but now too valuable.

Section 4. Wood Pavements.

Attention is invited to Hardwickia binata, Shorea robusta, Anogeissus latifolia, Terminalia tomentosa. See Section 1.

Section 6. Wood-Carving and Turnery.

(*From Cuddapah District—A. W. B. Higgens, Esq., Deputy-Conservator of Forests.*)

1. Pterocarpus santalinus, . .	Small log of red sanders. Used for carvings of native houses and temples.
2. Erythroxylon monogynum, . .	Small log; wood scented. Used for ornamental work and as a substitute for sandalwood.
3. Dalbergia latifolia, . . .	Blackwood or rosewood.
4. Chloroxylon swietenia, . .	Satinwood.

5. Diospyros melanoxylon, . .	Ebony.
6. Carissa carandas, . . .	Used for spoons, cups, combs, etc.

(*From Nílgiri District—Lieutenant-Colonel R. S. Jago, Deputy-Conservator of Forests.*)

1 section of stem of sandal tree, .	(Santalum album) with bark on.
1 slab from heart wood, . . .	The part used both from Sigúr forests, Nílgiris.

Section 9. Wood Engraving.

The following are exhibited as possible substitutes for boxwood for engraving purposes :—

(*From Ganjam District—J. P. S. Gamble, Esq.*)

1. Atalantia monophylla, (Rutaceæ),	Not very common and small.
2. Feronia elephantum, do. .	Common and of large size.
3. Ægle marmelos, do. .	Do.
4. Limonia acidissima, do. .	Do.
5. Gardenia turgida, (Rubiaceæ), .	Common and fairly large.
6. Plectronia didyma, do. .	Fairly common and large.
7. Gelonium lanceolatum, (Euphorbiaceæ).	Not very common.
8. Ochna squarrosa, (Ochnaceæ), .	Do.
9. Chloroxylon swietenia, (Meliaceæ),	Common and large. (See Section 1.)

(*From Vizagapatam District—J. S. Gamble, Esq.*)

1. Gardenia latifolia, (Rubiaceæ), .	Common and fairly large.

(*From Cuddapah District—A. W. B. Higgens, Esq.*)

1. Memecylon edile, (Melastomacæ), .	Common and moderately large.
2. Gelonium lanceolatum, (Euphorbiaceæ).	Common and fairly large.
3. Erythroxylon monogynum, (Lineæ),	Common and moderately large. (See in Section 6.)
4. Ixora parviflora, (Rubiaceæ), .	Common and large.
5. Carissa carandas, (Apocyneæ), .	Common but small. (See in Section 6.)
6. Limonia acidissima, (Rutaceæ), .	Common and moderately large.
7. Anogeissus latifolia, (Combretaceæ),	Common and large. (See also in Section 1*a*.)
8. Mimusops indica, (Sapotaceæ), .	See in Section 1*a*.

Section 10. Bamboos, Canes, Reeds, and Manufactures therefrom.

(*From Ganjam District—J. S. Gamble, Esq.*)

1. Brooms made from the flower-stalks of Thysanolæna acarifera.

(*From Vizagapatam District—the Collector.*)

1. Stems and leaves of cane, (Calamus fasciculatus).
2. Leaf-plates from the leaves of Bauhinia Vahlii.

(*From Cuddapah District—A. W. B. Higgens, Esq.*)

1. Stems of Dendrocalamus strictus, Bamboo.
   (i) 3 ten-feet stems, common kind.
   (ii) 3 ten-feet stems, solid kind.
   The former used in building, the latter for walking-sticks, spear-shafts, etc.
2. Stems of Bambusa arundinacea.
   (i) 3 ten-feet stems, large.
   (ii) 3 ten-feet stems, small.
   Various baskets, sieves, winnowing trays, well baskets, lamp stands, etc., made of bamboo.
3. Cyperus corymbosus. Stems used in mat-making. Rajampet mats made from the above.

Section 11. Tanning Substances.

(*From Bellary District—E. D. M. Hooper, Esq.*)

1. Acacia arabica, (Babúl), . . Bark used for tanning.
2. Cassia auriculata, (Tangedu), . Do.
3. Cæsalpinia coriaria, (Divi-divi), . Do.

(*From Nílgiri District—Lieutenant-Colonel R. S. Jago.*)

1. Fruits of gall-nut, (Terminalia chebula).

(*From Cuddapah District—A. W. B. Higgens, Esq.*)

1. Terminalia chebula, (Combretaceæ), Ripe fruit used for tanning, ink-making, and dyeing.
2. Cassia auriculata, (Leguminosæ), . Bark used for tanning.
3. Cassia Fistula, do. . Do.
4. Terminalia tomentosa, (Combretaceæ), Do.
5. Mimusops elengi, (Sapotaceæ), . Do.
6. Zizyphus xylopyra, (Rhamneæ), . Do.
7. Acacia arabica, (Leguminosæ), . Do.
8. Butea frondosa do. . Do.

Section 12. Dyeing Substances.

(*From Nílgiri District—Lieutenant-Colonel R. S. Jago.*)

1. Rubia cordifolia, . . Indian wild madder.
2. Berberis aristata, . . Indian barberry.

(*From Nellore District—F. d'A. Vincent, Esq.*)

1. Oldenlandia umbellata, . . Chay root. A red dye.
2. Rocella Montaignei, . . Orchella. Used to make litmus paper, and as a violet-blue dye for cloths in England.
3. Ventilago maderaspatana, . A valuable red dye.

(*From Bellary District—E. D. M. Hooper, Esq.*)

1. Butea frondosa, ... Flower. Orange dye.

(*From Cuddapah District—A. W. B. Higgens, Esq.*)

1. Pterocarpus santalinus, . . Red sanders. Stumps and roots, etc., produce a dark red dye.
2. Soymida febrifuga, . . Bark. Red dye.
3. Ventilago maderaspatana, . Root bark. Red dye.
4. Morinda tinctoria, . . . Bark and chips. Yellow dye.
5. Mangifera indica, . . . Mango. Yellow dye.
6. Semecarpus anacardium, . Fruit. Black dye.
7. Mallotus philippinensis, . . Mealy powder. Orange-red dye.
8. Cassia Tora, ... Seeds. Used as a mordant with the bark of Wrightia tinctoria to produce a blue dye.

Section 13. Barks.

(*From Nílgiri District—Lieutenant-Colonel R. S. Jago.*)

1. Cinnamomum zeylanicum, . Wild cinnamon.

(*From Bellary District—E. D. M. Hooper, Esq.*)

1. Adansonia digitata, . . Babúl bark.
2. Acacia leucophlœa, . . Used for distillation of spirits.

For other barks, see Section 11, Tanning Substances.

(*From Cuddapah District—A. W. B. Higgens, Esq.*)

See Section 11, Tanning Substances, and Section 12, Dyeing.

Section 14. Fibres and Fibrous Substances.

(*From Anantapur District—J. H. B. Brougham, Esq.*).

1.	Sanseviera zeylanica,	Chapuk-kodapu,	Telugu.
2.	Hibiscus cannabinus,	Gogu,	,,
3.	Calotropis gigantea,	Jilladu,	,,
4.	Agave americana,	Kalabunda,	,,
5.	Dæmia extensa,	Jittappa-tega,	,,
6.	Pandanus odoratissimus,	Muggali,	,,
7.	Cocos nucifera,	Tenkai,	,,
8.	Sterculia populifolia,	Gali-budda,	,,
9.	Do. villosa,	Yerra-polki,	,,
10.	Sesbania Ægyptiaca,	Jeelaga,	,,
11.	Pavonia odorata,	Chitta-mutti,	,,
12.	Do. zeylanica,	Para-mutti,	,,
13.	Abutilon indicum,	Tuttura-benda,	,,
14.	Sida rhombifolia,	Pandi-Penta,	,,
15.	Do. cordifolia,	Pandi-mutti,	,,

Some of these are not exactly *forest* products, but are exhibited as representing the fibres of the district.

(*From Bellary District—E. D. M. Hooper, Esq.*).

1.	Agave americana,	Petha-kalabunda,	Telugu.
2.	Borassus flabelliformis,	Tatti-chettu,	,,
3.	Bauhinia racemosa,	Arginar,	,,
4.	Calotropis gigantea,	Nalla-jilladu,	,,
5.	Cocos nucifera,	Tenkia,	,,
6.	Crotalaria juncea,	Janupa,	,,
7.	Hardwickia binata,	Nar-yepi,	,,
8.	Hibiscus cannabinus,	Gogu,	,,
9.	Pandanus odoratissimus,	Muggali,	,,
10.	Phœnix sylvestris,	Ita,	,,

(*From Cuddapah District—A. W. B. Higgens, Esq.*).

1.	Hardwickia binata,	Yepi,	Telugu.
2.	Bauhinia racemosa,	Aré,	,,
3.	Odina Wodier,	Gumpeni,	,,
4.	Calotropis gigantea,	Jilledu,	,,
5.	Agave americana,	Kalabanda,	,,
6.	Sanseviera zeylanica,	Chaga,	,,
7.	Helicteres Isora,	Gubathada,	,,
8.	Sterculia villosa,	Yerrapoliki,	,,
9.	Ficus indica,	Marri,	,,
10.	Do. Tsiela,	Juvvi,	,,
11.	Do. tomentosa,	Kaljuvvi,	,,
12.	Do. hirsuta,	Ambudaka,	,,

13.	Terminalia (sp.),	Tapasi,	Telugu.
14.	Prosopis spicigera,	Jambi,	,,
15.	Acacia leucophlœa,	Thella-thumma,	,,
16.	Dichrostachys cinerea,	Veluthuru,	,,
17.	Pterospermum suberifolium,	Thada,	,,
18.	Phœnix sylvestris,	Itha,	,,
19.	Cordia Perrottetii,	Iriki,	,,
20.	Do. grandis,	Gadava,	,,
21.	Grewia tiliæfolia,	Peddajana,	,,
22.	Kydia calycina,	Kondapathi,	,,

Section 15. Materials for Paper Manufacture.

(*From Ganjam District—A. W. Lushington, Esq.*)

1. Andropogon involutus, . . Grass said to be equal to "Alpha" and "Esparto." Very common in Gumsúr, and capable of great utilisation were the rates of freight not prohibitive.

See also many of the barks and fibres given in Sections 13 and 14, especially of Bauhinia, Grewia, Sterculia, Ficus.

Section 16. Gums, Resins, and Gum Elastics.

(*From Nílgiri District—Lieutenant-Colonel R. S. Jago.*)

1. Pterocarpus marsupium, . Vengay, Tamil. The "kino" gum of medicine.

(*From Vizagapatam District—J. S. Gamble, Esq.*)

1. Soymida febrifuga, . . Somi, Telugu.

(*From Bellary District—E. D. M. Hooper, Esq.*)

1. Hardwickia binata, . . Yepi, Telugu; Asin, Kanarese.

(*From Cuddapah District—A. W. B. Higgens, Esq.*)

1. Acacia arabica, . . . Nulla-thumma, Telugu.
2. Pterocarpus marsupium, . Yégi, ,,

Section 17. Wood-Oils and Varnishes.

No exhibits.

Oils.

(*From Anantapur District—J. H. B. Brougham, Esq.*)

1.	Brassica juncea,	Sassavutu,	Telugu.
2.	Argemone mexicana,	Yerri-kusamulu,	,,
3.	Sesamum indicum,	Nugulu,	,,
4.	Pongamia glabra,	Kanaga,	,,

5. Melia indica, . . .	Vapa,	Telugu.
6. Linum usitatissimum, . .	Avasi,	,,
7. Sterculia populifolia, . .	Galibudda,	,,
8. Guizotia oleifera, . . .	Ramtil,	,,
9. Anacardium occidentale, .	Munta-mamidu,	,,
10. Papaver somniferum, . .	Kuss-kuss,	,,
11. Arachis hypogæa, . . .	Vayr-sanekayalu,	,,
12. Buchanania latifolia, . .	Chara or Sarapappu,	,,

Some of these are not *forest* products, but are exhibited as showing the oils of the district.

(*From Bellary District—E. D. M. Hooper, Esq.*)

1. Melia azadirachta, . . .	Vepa, Telugu; Bevina, Kanarese.
2. Pongamia glabra, . . .	Kanuga, Telugu; Honge, ,,

(*From Nilgiri District—Professor M. A. Lawson, Director of Government Parks and Gardens.*)

1. Eucalyptus globulus, . .	Oil from the leaves—used as a disinfectant.	
2. Do. piperita, . .	Do.	do.
3. Eucalyptus amygdalina, . .	Do.	do.
4. Gaultheria fragrantissima, .	Oil from the fruit.	
5. Andropogon citratus, . .	Oil from the leaves—lemon grass oil.	

Section 18. Drugs, Food, Spices.

(*From Nilgiri District—Lieutenant-Colonel R. S. Jago.*)

1. Pterocarpus marsupium, .	Kino gum (see Section 16).

(*From Bellary District—E. D. M. Hooper, Esq.*)

1. Alpinia galanga, . . .	Petha-dumparashtrakum,	Telugu.
2. Antidesma diandrum, . .	Petha-gummadu,	,,
3. Erythrina suberosa, . .	Mullu-modugu,	,,
4. Glycyrrhiza glabra, . .	Atimaduram,	,,
5. Ocimum sanctum, . . .	Kristna-tolasi,	,,
6. Tinospora cordifolia, . .	Tippa-teegai,	,,
7. Withania somnifera, . .	Penaaroo,	,,

To these may be added the oils of Melia azadirachta and Pongamia glabra. (See Section 17.)

(*From Nellore District—F. d'A. Vincent, Esq.*)

1. Strychnos nux vomica, . .	Seeds of the strychnine tree. Common and largely exported.

(*From Cuddapah District—A. W. B. Higgens, Esq.*)

1.	Albizzia lebbek,	Driasanam, Telugu.
2.	Cassia fistula,	Rela, ,,
3.	Melia indica,	Vepa, ,,
4.	Carissa carandas,	Kalivi, ,,
5.	Strychnos nux vomica,	Mushti, ,,
6.	Strychnos potatorum,	Chilla, ,,
7.	Randia nutans,	Manga, ,,
8.	Terminalia belerica,	Thandra, ,,
9.	Phyllanthus emblica,	Userike, ,,
10.	Echinops echinatus,	Bramhadandi, ,,
11.	Thespesia lampas,	Kuruvéru-gogu ,,
12.	Andrographis paniculata,	Nélavému, ,,
13.	Achyranthes aspera,	Uttaréni, ,,
14.	Toddalia aculeata,	Merapu, ,,
15.	Tamarindus indica,	Chintha, ,,
16.	Cassia lanceolata,	Nélathangedu ,,
17.	Vitis quadrangularis,	Nalléru, ,,
18.	Tephrosia purpurea,	Vempale, ,,
19.	Hemidesmus indicus,	Sugandapala, ,,
20.	Withania somnifera,	Pennérugadda ,,
21.	Tylophora asthmatica,	Kukapalu, ,,
22.	Acorus calamus,	Vasa (Vadaja) ,,
23.	Ægle marmelos,	Marédu, ,,
24.	Feronia elephantum,	Vellaga, ,,
25.	Cæsalpinia bonducella,	Gatsukai, ,,
26.	Calotropis gigantea,	Jillédu, ,,
27.	Aristolochia bracteata,	Gadide-kadupu ,,
28.	Datura alba,	Ummetha, white and red, Telugu.
29.	Erythroxylon monogynum,	Devadaru, Telugu.
30.	Murraya Königii,	Karavépa, ,,
31.	Buchanania angustifolia,	Sara, ,,
32.	Acacia concinna,	Chikai, ,,
33.	Acacia leucophlœa,	Thela-thumma ,,
34.	Tinospora cordifolia,	Tippathige, ,,
35.	Pongamia glabra,	Kanuga, ,,
36.	Abrus precatorius,	Guriginje, (red variety), Telugu.
36*a*.	Do.	Do., (white variety), ,,

Section 19. Charcoal.

No exhibits.

Section 20. Peat.

(*From Nílgiri District—Lieutenant-Colonel R. S. Jago.*)

1.	Nílgiri peat,	Commonly burned in Ootacamund.

One Indian Boar's Head.
One German do.
One Ceylon Sambur (Rusa aristotelis).
One Indian do. (,,).
One Mauritius do. (,,).
Two Ravine Antelopes (Gazella Bennettii).
One Buffalo Head (shot by Sir J. Fayrer) (Bubalus Arni).
One Marsh Deer of India ( ).
One Reindeer.
One Switch-horned Sambur.
One Crimean Deer.
One Lynx Head (Russia).
One Wolf do. (do.).
One Picture of Elephant Hunt.
Eight Drawings of Tiger-hunting Scenes.

4. *Lent by* H.R.H. Prince Christian of Schleswig-Holstein, K.G.
Red Deer Antlers from Windsor Park, grown by the same stag in four consecutive years. Roe-Deer Heads.

5. *Lent by* the Earl of Northbrook, G.C.S.I.
One Burmah stag (Cervus eloi).
One Ibex (Capra Siberica).
Two Shapoor from Ladak (Ovis Vignii).
One Maral (Cervus affinis) from Eastern Turkestan.
Two Ovis Ammon from Ladak.
One Bison, Travancore (Bos Gaurus).
One Ovis Polii from the Thienshan range.
One Burrell (Ovis Nahura), Ladak.
One Markhor (Hircus megaceros), Baltishan.
One Oorial (Ovis cycloceros), Punjab Salt range.
One Cashmere Barasinga Stag (Cervus Wallichii).
One Snow Antelope (Pantholops Hodgsoni), Thibet.

6. *Lent by* Colonel Michael, C.S.I.
One Bull Bison (Bos Gaurus), Annamallay Hills, Madras.
Two Buck and one Doe Ibex (Capra Warryato or Hemitragus Hylocrius), Nilghiri Hills, Madras.
Two Buck Antelopes (Cervicapra bezoartica), Madras.
One do. (curious formation).
One pair of Elephant Tusks, Annamallay Hills.
One do. (one broken and decayed), do.
One Head of Man-eating Tiger, mounted as a letter-box.
One Elephant's Foot—Footstool.
Sketches of Sporting Incidents by General Douglas Hamilton.
Game List, etc. etc.

7. *Lent by* Lord Charles Beresford, R.N.
One pair of Hippopotamus Tusks.
One Waterbuck (Kolus ellipsiprymnus).

8. *Lent by* Colonel Payne, M.S.C.
   One pair of Elephant Tusks, Madura, Madras.

9. *Lent by* the Duke of Sutherland, K.G.
   Four Red Deer Heads from Dunrobin.

10. *Lent by* R. G. Bateson Harvey, Esq.
    One Ibex (Capra Himalayana), Thibet.
    One Markhor (Hircus megaceros), do.
    One Shapoor (Ovis Vignii), do.
    One Sambur (Rusa aristotelis), Nilghiri Hills, Madras.
    One Cheetul (Cervus Axis).
    Two Chikara (Gazella Bennettii).
    One Musk Deer (Moschus moschiferus).
    One Thar (Capricornis bubalina).
    One Bison (Bos Gaurus), Madras.
    One pair of Elephant Tusks, Madras.
    One Four-Horned Antelope (Tetracerus quadricornis).
    One Buck Antelope, Central India.
    One do. do. Madras.

11. *Lent by* A. J. Mein, Esq.
    One Buffalo (Bubalus Arni), Assam.

12. *Lent by* Atholl Macgregor, Esq., Eastwood, Dunkeld.
    Ibex Heads.

13. *Lent by* Captain H. Dick Cunyngham, V.C., 92d Highlanders.
    Markhor and Ibex Heads.

15. *Lent by* Colonel E. M. Norie.
    Head of Bison.

16. *Lent by* A. Hill Gray, Esq., Dunkeld.
    Siamese, Borneo, and other Deer Heads.

17. *Lent by* James Lamont, Esq. of Knockdow.
    Horns of Reindeer from Spitzbergen.
    Head of Koodoo, South Africa.
    Pair of abnormal Tusks of Hippopotamus.
    Horns of American Deer from Trinidad, West Indies.
    Skull of African Buffalo from the River Ngotuani, a tributary of the Limpopo.
    Piece of worm-eaten Drift-wood from Spitzbergen.

18. *Lent by* A. Williamson, Esq.
    Sporting Trophies from Colorado: Wapiti Deer, Prong-horned Antelope, Black-tailed Deer, Bison, etc.

19. *Lent by* Captain Shaw Kennedy.
    Two Black Buck Heads.
    Five Barra Singh, Cashmere.

INDEX TO EXHIBITORS.

CONTRIBUTORS TO LOAN COLLECTION OF FOREST SPORTING TROPHIES.

HER MAJESTY THE QUEEN.
H.R.H. THE PRINCE OF WALES, K.G.
H.R.H. THE DUKE OF EDINBURGH, K.G.
H.R.H. PRINCE CHRISTIAN OF SCHLESWIG-HOLSTEIN, K.G.

The Earl of Northbrook, G.C.S.I.
Colonel Michael, C.S.I.
Lord Charles Beresford, R.N.
Colonel Payne, M.S.C.
The Duke of Sutherland, K.G.
R. G. Bateson Harvey, Esq.
A. J. Mein, Esq.
Atholl Macgregor, Esq.
Captain H. Dick Cunyngham, V.C.
Colonel E. M. Norie.
A. Hill Gray, Esq.
James Lamont, Esq.
A. Williamson, Esq.
Captain Shaw Kennedy.

Section 21. Cones, Seeds, and Fruits.

Seeds.

(*From Bellary District—E. D. M. Hooper, Esq.*)

1.	Acacia arabica,	Tumma, Telugu; Talla, Kanarese.
2.	Abrus precatorius,	Guriginja, Telugu and Kanarese.
3.	Bixa orellana,	Jafra, " "
4.	Poinciana elata,	Sonkasel, Telugu; Sonkasaswara, Kanarese.

Fruits.

1.	Balanites Ægyptiaca,	Garee, Telugu.
2.	Bauhinia racemosa,	Arree, "
3.	Stereospermum xylocarpum,	
4.	Dichrostachys cinerea,	
5.	Cassia auriculata,	Tangedu, Telugu; Amara, Kanarese.
6.	Do. fistula,	Rela, Telugu; Kakee, Kanarese.
7.	Kydia calycina,	Nar-botku, Telugu.
8.	Eriodendron anfractuosum,	Booraga, Telugu; Kadami, Kanarese.
9.	Guazuma tomentosum,	Oodrick, Telugu.
10.	Poinciana regia,	Soonkasel, Telugu; Soonkaswara, Kanarese.
11.	Pongamia glabra,	Kanoogoo, Telugu; Kaniga, Kanarese.
12.	Sapindus emarginatus,	Kukatu, Telugu; Untoohullikoi, Kanarese.
13.	Sterculia fœtida,	Adavi-badame, Telugu.
14.	Tamarindus indica,	Chintapandu, Telugu; Hoonsiehunnu, Kanarese.
15.	Tectona grandis,	Thaikoo-manu, Telugu; Thaikumara, Kanarese.
16.	Terminalia chebula,	Karakaia, Telugu; Hurlu, Kanarese.

(*From Nellore District—F. d'A. Vincent, Esq.*)

1.	Sapindus emarginatus,	Soapnut. Universally used for soap.
2.	Strychnos nux-vomica,	Seeds largely exported for medicine. (See Section 18.)

(*From Nilgiri District—Lieutenant-Colonel R. S. Jago.*)

1.	Sapindus emarginatus,	Soapnut.

Section 22.—Climbers.*

(*From Ganjam District— J. S. Gamble, Esq.*)

1. Combretum ovalifolium.
2. Calycopteris floribunda.
3. Celastrus paniculata.
4. Acacia Intsia.
5. Millettia racemosa.
6. Bauhinia Vahlii.
7. Spatholobus Roxburghii.
8. Zizyphus œnoplia.
9. Gnetum scandens.
10. Olax scandens.
11. Ventilago calyculata.

(*From Nilgiri District—Lieutenant-Colonel R. S. Jago.*)

1. Jasminum cordifolium.
2. Gnetum scandens.
3. Gardenia ovata.
4. Toddalia aculeata.
5. Gymnema hirsutum.
6. Rosa Leschenaultii.
7. Jasminum brevilobum.
8. Elœagnus latifolia.

Section 23.—Miscellaneous.

(*From Ganjam District—J. S. Gamble, Esq., Conservator of Forests, Northern Circle.*)

1. Stems of Cycas circinalis.

(*From Cuddapah District—A. W. B. Higgens, Esq., Deputy-Conservator of Forests.*)

1. Stems of Cycas Beddomei.

Class III.—SCIENTIFIC FORESTRY.

Section 1.—Botanical Specimens of Forest Flora.

Collection of 136 species of important forest trees, shrubs, and climbers, represented by their leaves, mounted. It would have been more interesting to have given also flowers and fruit, but as time was not available, and as, after all, the most characteristic form of leaf is the best means of learning to recognise the tree in the forest, it was decided to send leaves only. Endeavour has been made to represent the 50 chief families and the chief important genera.

(*For list see page* 108.)

* There being no section for climbers, it has been thought best to make a section (22) for them.

A SHORT ACCOUNT OF THE FORESTS OF THE NORTHERN FOREST CIRCLE, MADRAS PRESIDENCY.

THE *chief forest tracts* in the Northern Circle are the following:—

Ganjam District.—In the Goomsur Taluk, including Suradá, are large sál (Shorea robusta) forests, the best portions of which lie at the foot of the Ghát range in the valleys of the Gullery and Mahanadi rivers and on the boundary of the Puri District in the Kriyamba valley. The sál tree chiefly occurs on the level lands and in the valleys and lower slopes of the hills, the upper slopes being covered, where dry, with forest of bamboo and deciduous trees, and, where ravines occur, with evergreens and large specimens of the mango (Mangifera indica). The chief allies of sál in the plains are the sahájo (Terminalia tomentosa), dhau (Anogeissus latifolia), holondha (Adina cordifolia), and ebony or kendhu (Diospyros tomentosa).

The satinwood (Chloroxylon swietenia) also is occasionally met with, while in the poor "kunkur" lands, which here and there alternate with the richer sál-producing soils, the sohan (Soymida febrifuga) grows to a large size. The prevalence of the mango and tamarind is most noticeable, and leads to the suspicion, otherwise also borne out by the homogeneous growth of the sál forests and the rocky nature of the hills, that it is not long since the whole country was under cultivation. The slopes of the Eastern Ghát s which surround Goomsur on the west and south are clothed with a damper vegetation, and here the sál may be seen ascending to from 2000 to 3000 feet in altitude. Large and lofty forest trees cover these slopes, and in wetter places are especially found the tangani (Xylia dolabriformis) and the toon (Cedrela toona). The forests of Goomsur are in better actual condition than those of Suradá, for the better means of rafting afforded by the larger river of the latter, the Rushikulya, has led to a greater export, and especially of firewood and sál poles.

In the Berhampore Taluk, near the sea and close to the town of Berhampore, are the forests of the Mohiri Hills, capable of great improvement and great utility, though at present worked beyond their means. The hills are inhabited by Sauras, who live by "kumri" cultivation, and the constitution of reserves is therefore difficult. The chief tree in the Mohiri Hills is tangani (Xylia dolabriformis): the sál does not occur.

The Agency Tracts of Goomsur and Chinna Kimedi under Government, as well as those of Pedda and Parlá Kimedi and Bodogodo under Zemindars, are covered with forests in the less frequented parts. Large sál is very common and is to some extent exported, but the absence of export roads from the Ghát s will prevent much denudation for some time to come, and before that time does come it is to be hoped that arrangements for proper conservancy and management will

have been started. Rules have already been framed for the Parlákimedi Zemindari, at present under the Court of Wards.

Most of the zemindaries contain considerable areas of forest land; but very little care of the forests is taken, and they are consequently rapidly deteriorating. Noticeable are the forests of the Mahendragiri slopes, rising to nearly 5000 feet in the estates of Mandasa and Budarsing, but they are much denuded by "kumri" cultivation. The upper parts are covered with "sholas" as in the Nílgiris, and the lower with forest, the principal tree in which is the tangani (Xylia dolabriformis). As in the Goomsur Hills, the mango and tamarind, as well as the "solopo" palm (Caryota urens), are greatly prized by the Khonds and Sauras, the latter as a toddy-yielder. Along the coast are occasional stretches of scrub forest, some of which will be protected as "Fuel and Fodder Reserves," and in the vicinity of important seaports like Ganjam, Gopálpur, and Calingapatam, it is proposed to make plantations of casuarina.

The Goomsur forests were visited by the Conservator in 1859 (Dr. Cleghorn), 1864 and 1875 (Colonel Beddome), and 1884 (Mr. Gamble), and after the latter's visit proposals were made for selecting large areas in Goomsur and Suradá for constitution as reserved forests. The Mohiri and Mahendragiri Hills and the Parlákimedi Estate were also inspected. Five ranges were constituted, at Berhampore, Suradá, Mojogodo, Kukuluba, and Kurcholy. The headquarters are at present at Russellkonda, where is the chief depôt for the sale of timber. Forest houses have been built at Russellkonda and Suradá, and others are in course of construction. Most of the timber goes in the form of sleepers to Calcutta, but there is also a considerable local demand at Aska, Berhampore, and Gopállpur.

Vizagapatam District.—The conditions of forest work in this district are much the same as in Ganjam. The Government forests lie in the Pálkonda Hills to the north, in the Golgonda Hills in the south-west, and in the coast taluk of Sarvasiddhi. The rest of the country is zemindari land, and the largest of the estates, Jeypore, has very considerable areas of forest similar to that of the Agency Tracts of Ganjam. The Pálkonda forests were examined in 1884; they contain large areas of young forest, with an abundance of tangedu (Xylia dolabriformis), bella (Chloroxylon swietenia), and other good trees along the slopes to the south-west, overlooking the Pálkonda Taluk, while within are good patches of gugilapu (Shorea robusta), noticeable among which are those at Voni and Lakshmipuram, which have been for some time carefully protected. Proposals for constituting reserves were made to the Collector, and it is probable that before long these forests will yield considerable material for the supply of the taluks of the Vizianagram Subdivision and the Chicacole Taluk of Ganjam.

The forests of the Golgonda Taluk lie partly in the plains, but chiefly in the hills of the main range of the Eastern Gháts, which rise to 4500 feet. The chief trees are the Konda tangedu (Xylia dolabri-

formis) and the Nalla maddi (Terminalia tomentosa). Mr. Welsh, the Sub-Collector, states that bamboos are also exported as well as myrabolams, the produce of the karakai (Terminalia chebula). The people also bring out leaves for plates. Teak (Tectona grandis) is scarce, and is chiefly found only towards the Godávari. These forests are being inspected for the constitution of reserves. In the Sarvasiddhi Taluk, according to Mr. Welsh, there is an extensive area of waste land, which will now be utilised partly as "Reserved Forests," partly as "Fuel and Fodder Reserves." This land consists chiefly of stony hills, which stretch down to the sea, and adjoining the Government lands are those of the Pandúr, Mallavaram estate, now under the Court of Wards, where some attempt at conservancy has been started.

In the Párvatipur Subdivision there are still some patches of sál forest rapidly being denuded, and the hills along the sea-coast about Bimlipatam and Vizagapatam, in the Vizianagram Zemindari chiefly, would repay protection.

A forest division has lately been constituted and two ranges formed, the headquarters being at Vizagapatam.

Godávari District.—Of the forests of this district little is yet known, except of those in the taluks of Rékapalle and Bhadráchalam on the Godávari. These latter, which really continue the Golgonda Hills of Vizagapatam and adjoin the Rampa Hills, have been for some time under the conservancy which was started when they formed part of the Central Provinces. The chief tree is teak (Tectona grandis), but other good kinds are found, and notably Konda tangedu (Xylia dolabriformis), which here nearly reaches its southern limit on the east coast. Twelve reserves, said to contain 68 square miles, have been constituted, but these will have to be increased if a proper area is to be secured. Of these, the Ghandigudiem reserve is said to be the best, but their capabilities are as yet very little known. There are considerable areas of waste land in the taluks of the Godávari delta, which will shortly be examined and reported on. The headquarters of the division are at Rajahmundry; a Forest Ranger resides at Dumagudiem, and other ranges will be constituted as required.

Kistna District.—The forests of this district are somewhat scattered, but the chief areas lie in a block towards the west in the Palnád, Vinukonda, and Sattenapalle Taluks. The chief tree in these forests is the yépi (Hardwickia binata), but a small amount of teak is found, as also is the Konda tangedu. Their present condition is not very good, chiefly on account of their having been too much grazed over, but they will improve under protection. The chief forests are those of Bollapalli in Vinukonda, those bordering the Kistna river in Palnád and Venkatayyapalem in Sattenapalle Taluk. In the Bezváda and Nandigáma Taluks lie the Kondapalli and Kottur forests, with some smaller areas near Bezváda itself. In the Narsaraopet Taluk is the isolated hill range of Kondavíd, now only covered with scrub, chiefly of custard apple (Anona squamosa), but capable of improving; while in the Guntúr Taluk the chief forest areas are in the plains, on old cultivated

land, and growing Nulla tumma (Acacia arabica). In the Bápatla Taluk there is a large stretch of forest land near the coast producing soapnuts (Sapindus emarginatus), while a similar area existed in Gudiváda, which, having lately been leased out, has now almost disappeared. About the mouth of the Kistna are large extents of mangrove swamp, the principal tree in which is the mada (Avicennia officinalis), and these forests furnish great quantities of fuel for the supply of Masulipatam. In the taluks of Gudiváda, Bandar, Répalle, and Bápatla many plantations were formed by the Jungle Conservancy Fund, chiefly of casuarina (Casuarina equisetifolia), but also of other species, such as vepa (Melia azadirachta) and dirisana (Albizzia Lebbek) with the palmyra palm (Borassus flabelliformis). Some of these plantations, as was to be expected at the outset, have proved failures, while others, and especially those of Karlapálem and Warderevu, may be expected to produce a considerable amount of useful material.

Proposals for the formation of "Reserved Forests" are now being submitted to Government, and it may be hoped that after time has been allowed for the improvement of growth, the Kistna forests will be most valuable for the supply of the thickly populated agricultural country of the Kistna delta. The headquarters of the division are at Masulipatam, and ranges have been formed at Bandar, Bápatla, Bezváda, Guntúr, Vinukonda, Palnád, and Krosúr. Portions of the district were visited in 1883 by the Conservator.

Nellore District.—The chief range of forest country in this district lies along the Veligonda Hills, on the eastern slopes of the range in the taluks of Rapúr, Atmakúr, Udayagiri, and Kanigiri, in blocks alternating with zemindari lands, chiefly belonging to the Kálahasti and Venkatagiri Estates. In these forests the red sanders tree (Pterocarpus santalinus) occurs, as well as the yépi (Hardwickia binata), yegi (Pterocarpus marsupium) and teak, with other valuable kinds. They have now been proposed for constitution as reserved forests. The isolated hill ranges of Udayagiri, Kanigiri, and Chimakurthi have also been so proposed, and settlement is in progress.

The next in importance of the forests of the Nellore District is that of Sríharikóta, on the islands of the Pulicat lake and the belt of land between the lake and the sea. This forest has long been worked for the supply of the Madras market in fuel. The chief trees are the nerudu (Eugenia jambolana), solagu (Pterospermum suberifolium), and mushti (Strychnos nux vomica). Soapnuts are also found, and tamarind trees in great number. The chief product is fuel, and for this the forest block for the year is cut, the trees being pollarded only, and not cut to the ground. For the purposes of working, eight blocks are formed, and these are cut in rotation. Minor produce also is largely exported, such as tamarinds, strychnine seeds, orchil (Rocella Montaignei), and the dye-plants, chay (Oldenlandia umbellata), and surati chekur (Ventilago Madraspatana). Canes, the produce of Calamus Roxburghii, are also sent to Madras for sale.

In the plains taluks of Gúdúr, Nellore, Kávali, Kandukúr, and Ongole, the forests consist of areas of scrub, some of which, however, and especially those reserved near Nellore and Ramapatam, are in good growth, and valuable for fuel and poles and the small wood, which is the most necessary for native use. Out of these areas reserves are being selected, but all are under management under the forest rules. The chief fuel trees are the chikreni (Albizzia amara), and pala (Mimusops indica); but the number of kinds is large, and there are many others of value.

Very important also in the Nellore District are the casuarina plantations, the chief of which are at Dugarázpatnam, Kottapatam, Tamminapatam, Utukur, Tummulapenta, Ramapatam, and Kanuparti. Some of these were started by the Salt Department, the rest by different previous Collectors, but the credit of the good work done is chiefly due to a native Sub-Assistant Conservator, Somasundrum Moodelly, who was previously for many years under the Jungle Conservancy Department.

These plantations cover about 2000 acres of land on the sand dunes of the sea-coast, and are now coming into working. Recent investigations go to show that these plantations make annually an increment of about 4½ tons per acre up to eight years of age, and that about 5000 tons may yearly be made available. Arrangements for their survey and a proper working scheme are in progress. A number of palmyra plantations and one of cocoanut (Cocos nucifera) have been made, while many topes have been planted about the district. In some the cashewnut (Anacardium occidentale) is grown, and the nuts exported for sale. The headquarters of the division are at Nellore, and range headquarters at Sríharikóta, Nellore, Rapúr, Udayagiri, Kanigiri, Ongole, and Ramapatam. The produce of the Sríharikóta forests and the plantations is taken for sale to a central depôt in Madras.

Cuddapah District.—In this district forest work has perhaps been longer set on foot than in most others in the northern circle. There are forests in all taluks, but the chief areas are those of the Pálkonda Hills, the Seshachellum Hills, the Veligonda range, the Lankamalai Hills, the Nallamalais, the Yerramalai or Jammalamadugu Hills, and the scattered hills of the Kadiri and Madanapalle Taluks. On the Pálkonda Hills, red sanders (Pterocarpus santalinus) is the chief tree, but teak of small size is not uncommon with yépi (Hardwickia) and other species. In the valleys are large mango- and fig-trees. Owing to great demand for the railway supply, jungle fires, over-grazing, and excessive lopping of leaves for manure, these forests are reduced to small trees and scrub only, but large areas have now been proposed for reservation, and with careful protection, especially from fire and goats, they will rapidly improve, and indeed even now show promise of great value. It is probable that there is no more valuable wood in India, except sandal, than red sanders, and it is well that that tree was

specially selected for prohibition of felling some years ago, for otherwise there would be very few left. The Seshachellum Hills are very similar in growth, and indeed so also are the Veligondas and Lankamalais, in the former of which the thamba (Shorea Tumbuggaia) and jalari (Shorea laccifera), both valuable timbers, similar to the sál, occur.

The forests of the Nallamalai Hills enjoy a better soil, and the growth is consequently better. In the hills of the Kadiri, Madanapalle, Ráyachóti, and Váyalpád Taluks red sanders does not occur, and it is probable that the chief tree is the yellema (Anogeissus latifolia). Lying at the head of the valley of Pullampet between the Pálkonda and Veligonda Hills are the Ballipalle evergreen forests, which are being regularly worked for the supply of the Madras Railway. The best trees are the ebonies, satinwood, pala (Mimusops indica), and acacias, while many large clumps of bamboo, the large one (Bambusa arundinacea) in the plains, the small kind (Dendrocalamus strictus) on the adjoining hills, are much cut and exported. In this district there are many experimental plantations, chiefly made in order to find out the best system of reclothing bad soils. They have not been always very successful, but have afforded some experience, and some of them are doing well. The red sanders plantation at Kódúr has done very well indeed, and the only regret is that the area is not much larger. It was started in 1865 by the then Forest officer, Mr. Yarde, and the trees are now about 42 feet high, with a mean girth of about 18 inches, the average yearly increment so far having been about 3 tons per acre.

The Cuddapah District has many topes mostly along roads, and of good growth when it is considered that the best soils were not always chosen.

Large areas have been proposed as reserved forests in most taluks, except Jammalamadugu, which has not yet been finally reported on, and the settlement is in progress; the Thanakonda reserve so far with one or two plantations has alone been finally notified, but the large Settikunta reserve has also been completed.

The chief works in the district are the supply of the railway, which is done by contractors, and the collection and sale of red sanders roots and pieces for export. About 1500 tons are brought out annually, valued at about Rs.18,000. The wood is sent to England as a dye, probably as a substitute for logwood. Among other important products the chief is the tangedu bark (Cassia auriculata) which is very common, and of which large quantities are exported for tanning. The Cuddapah forests, altogether, are of great importance, and their position bordering a line of railway gives them a high value independently of that conferred by their usefulness in protecting the hills and the sources of the streams. The headquarters of the division are at Cuddapah, of the Assistant Conservator at Kódúr, and of the ranges at Kódúr, Rajampet, Cuddapah, Proddutur, Siddhavattam, Badvél, Ráyachóti, Váyalpád, Kadiri, and Madanapalle. There are three forest houses at Kódúr, Sanipaya, and Horsleykonda, and more are projected, as well as good roads to open up the forests.

Kurnool District.—The principal forest area in Kurnool is the great range of the Nallamalai Hills, which continue the portion referred to as coming in the Cuddapah District northwards to the Kistna river and the frontier of Hyderabad. These hills contain a very large extent of forest of various descriptions. The main range of hills has its slopes covered with bamboo and deciduous trees, chief among which are the chiriman (Anogeissus latifolia) and occasional jitegi (Dalbergia latifolia). In the hot weather season trees with showy flowers are conspicuous, such as the gogu (Cochlospermum gossypium), modugu (Erythrina indica), and buruga (Bombax malabaricum), while these brilliant colours are set off by the white-barked smooth stems of Sterculia urens. The valleys contain teak in considerable quantity, though not very large, as well as other valuable trees, such as the nallamaddi (Terminalia tomentosa) and yegi (Pterocarpus marsupium), while perhaps most conspicuous of all are the fine ippa (Bassia latifolia) whose flowers are eaten by the Chentzus, the jungle tribe of these hills, and the pandra (Terminalia belerica), left uncut, as it is considered unlucky. On the eastern side yepi (Hardwickia) of good size is not uncommon. Towards the north this tree is also the chief species of the plateaux which border the Kistna river and adjoin the forests of the Kistna District, but there it is as much smaller, as the soil is poorer. Near the temple of Srishalam, close to the chief gorge of the Kistna river, sandalwood (Santalum album) occurs, but of very slow growth. The Nallamalai forests occupy portions of five taluks, viz. Nandikótkur, Nandyál and Sirvel on the west, Márkápur and Cumbum on the east.

A small portion of the Veligonda Hills comes into this district as well as into Cuddapah and Nellore, and gives a small quantity of red sanders, while there are several isolated hills in the Cumbum and Márkápur Taluks, presenting, however, but poor growth compared to that of the Nallamalais. West of the Nallamalais and between the towns of Nandyál and Kurnool, and running also southwards into the Cuddapah District, are the Yerramalai Hills. These hills have been very much grazed over, and the forest growth is chiefly of poor and thorny kinds; it is however expected to improve on the selected areas, which will be constituted reserved forests.

The greater part of the Nallamalai Hills is under settlement as "Reserved Forests," as are some blocks in the Veligondas, but the settlement will take some time.

Of plantations there are none, but there are many good topes along the chief roads, which in future years will form good camping-grounds. The head-quarters of the division are at Nandyál, and ranges have been made at Cumbum, Márkápur, Nandikótkur, Sirvel, Nandyál, and the Yerramalais. Forest houses are in course of construction in the Nallamalais, where they are necessary on account of the bad climate, and export roads will soon be started.

Timber is not brought out departmentally, but purchased by contractors who themselves export to the plains country and the districts of Kistna and Bellary. Minor produce is not much collected, as so

much of it is used locally by the Chentzus. The main river-crossings from Hyderabad are watched, and passes checked under recently sanctioned rules.

Bellary District.—In forest capable of giving much produce at present this district is very poor, though areas of fair size have been selected on the Copper Mountain Range near Bellary and in the taluks of Hospet, Ráyadrúg, and Kudligi, to be constituted reserved forests. At present most of these forests are very bare, though in places, and notably at Malpangudi, where it has been long protected, there is a fair growth of yepi (Hardwickia binata). Some areas, especially in the Ádóni and Alúr Taluks, have also been selected, on which is a growth of babúl (Acacia arabica). But the chief forests of Bellary lie in the Sandúr State, from the Rajah of which a lease has been taken of 40,000 acres in three ranges round the Sandúr valley and the station of Rámandrúg. These forests have a good vegetation, especially on the summit of the plateau, where about 1500 acres of compact growth is found. On the slopes the forest is mostly deciduous, with teak, ebony, Terminalia tomentosa, and other trees, with some sandalwood.

Towards the base, where more cutting has gone on, the growth is naturally not so good. Great endeavours are being made to protect these forests from fire, and these endeavours have so far been successful. If they can be kept up permanently the forests of Sandúr will soon become very important.

The forest headquarters are at Bellary, and ranges have been formed at Sandúr, Kudligi, Hospet, and Ráyadrúg.

Anantapur District.—In character the forests of this district resemble those of Bellary and of the southern taluks of Cuddapah, which they adjoin. The chief forests lie in the hills of Penukonda and Hindupur, where there is a good growth, and in places teak, yepi (Hardwickia), Anogeissus latifolia, and other deciduous trees occur. Some good areas have been selected and proposed as reserved forests. Further north is the Muchukóta forest on the hills which separate the Tadpatri and Anantapur Taluks. This has been for some time under protection, though the keeping out of fire has been found to be difficult. The chief tree in the forest is the Hardwickia binata, and its general appearance is that of scattered poles of the tree with a few of other species.

There are a few topes and small plantations of babúl in this district, but the chief is that near Gooty, where there is a good growth of babúl (Acacia arabica), with Acacia leucophlœa, Albizzia Lebbek, the palmyra palm, and other trees of about 400 acres.

The headquarters of the forest division are at Anantapur, and ranges have been formed at Penukonda, Hindupur, and Muchukóta.

Nílgiri District.—The forests of the Nílgiris are of four kinds—

1. The eastern and southern slopes.
2. The northern slopes and Moyar valley.
3. The south-east Wynaad.
4. The "sholas" on the plateau.

In the first, we find deciduous forest with teak, anogeissus, terminalias, and other trees on the projecting spurs and slopes of southern aspect, while the valleys are filled with fine forest of partly evergreen, partly deciduous growth. In these valleys the chief tree is the vengai (Pterocarpus marsupium), but noticeable among others are Mesua ferrea, Cedrela toona, Chikrassia tabularis, and Bischoffia javanica. The second category contains chiefly deciduous forests, with a fair amount of sandalwood; and the third, similar forest to that of the Malabar Wynaad, showing trees of large size, chief among which are teak and blackwood (Dalbergia latifolia). The forest of the "sholas" is quite different. These "sholas" are patches of thick forest along ravines and water-courses, and separated by grasslands or downs. The forest is low, the trees rarely reaching 50 to 60 feet in height, and the most important trees are three Eugenias (Eugenia montana, Arnottiana, and calophyllifolia), two hollies (Ilex denticulata and Wightiana), Michelia nilagirica, Ternströmia japonica, Gordonia obtusa, Meliosma pungens, and Arnottiana, Mappia fœtida, and species of Symplocos, Microtropis, Viburnum, and Ligustrum. In all categories are reserved forests being selected for reservation. These "sholas" are very slow-growing, and old trees do not easily reproduce, so that when it was found that they were likely to be in danger of destruction for fuel, arrangements were made to plant the quick-growing Australian wattles and gums. Plantations of the blue gum (Eucalyptus globulus), and the wattles (Acacia melanoxylon and dealbata) have been formed near Ootacamund, Coonoor, and Wellington, and the chief of them are "Aramby" and "Bathri" at Ootacamund, "Old forest" and "Bandy-shola" at Coonoor, and "Rallia," near Wellington. These trees, and especially the blue gum, grow very fast, and are fit to cut at ten years of age, being then often 100 feet high, with a girth of 2—3 feet, or even more. The annual increment of blue gum has been ascertained to be about twelve tons per acre per annum, that of wattle six tons. These plantations are being worked in regular rotation for the supply of fuel on the plateau.

The produce of the Wynaad and Moyar forests consists of teak logs which are brought for sale to Ootacamund, sandalwood roots and myrabolams. The headquarters are at Ootacamund, and ranges have been formed at Coonoor, Kótagiri, Naduvatam, Sígúr, Mudumalai, and Mailur.

The northern circle was only constituted in December 1882; before that time the Ganjam, Nílgiri, Cuddapah, and Kurnool forests were alone under the Forest Department, the rest having been managed by the Jungle Conservancy Fund, now abolished.

The area of reserved forests constituted under the old system was 812 square miles on 1st April 1883, but this is by no means a correct estimate, for several large tracts are omitted. No reserve forests have yet been finally formed under the new Act.

The revenue and expenditure of the last two years have been—

	Revenue.	Expenditure.	Surplus.
	Rs.	Rs.	Rs.
1882-83, . . .	3,89,112	2,51,323	1,37,789
1883-84, . . .	4,13,333	3,02,452	1,10,811
Average, . .	4,01,222	2,76,887	1,24,335

The chief districts in which revenue is realised are Cuddapah, Kistna, Nellore, Kurnool, Nílgiris, and Ganjam. The sales of sál timber in Ganjam, of red sanders and railway fuel in Cuddapah, of fuel in Nellore, of sandalwood and teak in the Nílgiris, largely help to make this up, while under recent rules the general receipts may be expected slowly to improve.

J. S. GAMBLE,
Conservator.

LIST OF HERBARIUM OF LEAVES OF MADRAS FOREST TREES, NORTHERN CIRCLE (CIRCARS, DECCAN, AND NILGIRIS), EDINBURGH FORESTRY EXHIBITION, 1884.

I. *Dilleniaceæ.*

1. Dillenia pentagyna, (Roxb.).

II. *Magnoliaceæ.*

2. Michelia nilagirica, (Zenk.).

III. *Anonaceæ.*

3. Saccopetalum tomentosum, (H. f. and Th.).

IV. *Berberideæ.*

4. Berberis nepalensis, (Spreng.).

V. *Bixineæ.*

5. Flacourtia Ramontchi, (L'Herit.).

VI. *Pittospereæ.*

6. Pittosporum nilagiriense, (W. and A.).

VII. *Guttiferæ.*

7. Garcinia xanthochymus, (H. f.).

VIII. *Ternströmiaceæ.*

8. Eurya japonica, (Thunb.).
9. Ternströmia japonica, (Hk.).

IX. *Dipterocarpeæ.*

10. Shorea robusta, (Gærtn.).

X. *Malvaceæ.*

11. Bombax malabaricum, (DC.).

XI. *Sterculiaceæ.*

12. Eriolæna Hookeriana, (W. and A.).
13. Pterospermum suberifolium, (Lam.).

XII. *Lineæ.*

14. Erythroxylon monogynum, (Roxb.).

XIII. *Rutaceæ.*

15. Limonia acidissima, (Linn.).
16. Ægle marmelos, (Correa.).
17. Feronia elephantum, (Correa.).

XIV. *Ochnaceæ.*

18. Ochna squarrosa, (Linn.).

XV. *Simarubeæ.*

19. Ailanthus excelsa, (DC.).

XVI. *Burseraceæ.*

20. Garuga pinnata, (Roxb.).
21. Bursera serrata, (Colebr.).

XVII. *Meliaceæ.*

22. Melia indica, (Brandis.).
23. Cipadessa fruticosa, (Bl.).
24. Soymida febrifuga, (Adr. Juss.).
25. Chloroxylon Swietenia, (DC.).
26. Cedrela toona, (Roxb.).

XVIII. *Ilicineæ.*

27. Ilex denticulata, (Wall.).
28. „ Wightiana, (Wall.).

XIX. *Rhamneæ.*

29. Zizyphus jujuba, (Lamk.).
30. „ xylopyra, (Willd.).

XX. *Celastrineæ.*

31. Elæodendron Roxburghii, (W. and A.).

XXI. *Sapindaceæ.*

32. Schleichera trijuga, (Willd.).
33. Dodonœa viscosa, (L.).

XXII. *Sabiaceæ.*

34. Meliosma Wightii, (Plch.).

XXIII. *Anacardiaceæ.*

35. Mangifera indica, (L.).
36. Buchanania latifolia, (Roxb.).
37. Semecarpus anacardium, (L. f.).
38. Anacardium occidentale, (Linn.).

XXIV. *Leguminosæ.*

39. Millettia auriculata, (Baker.).
40. Erythrina indica, (Lam.).
41. Spatholobus Roxburghii, (W. and A.).
42. Ougeinia dalbergioides, (Benth.).
43. Dalbergia latifolia, (Roxb.).
44. „ paniculata, (Roxb.).
45. Pterocarpus santalinus, (L. f.).
46. „ marsupium, (Roxb.).
47. Pongamia glabra, (Vent.).
48. Hardwickia binata, (Roxb.).
49. Tamarindus indica, (L.).
50. Cassia fistula, (L.).
51. Bauhinia variegata, (L.).
52. „ purpurea, (L.).
53. „ retusa, (Ham.).
54. „ Vahlii, (W. and A.).
55. Xylia dolabriformis, (Bth.).
56. Acacia leucophlœa, (Willd.).
57. „ catechu, (Willd.).
58. Albizzia odoratissima, (Bth.).

XXV. *Rosaceæ.*

59. Photinia Lindleyana, (W. and A.).

XXVI. *Rhizophorea.*

60. Carallia integerrima, (DC.).

XXVII. *Combretaceæ.*

61. Terminalia chebula, (Retz.).
62. „ belerica, (Roxb.).
63. „ tomentosa, (W. and A.).
64. Anogeissus latifolia, (Wall.).
65. „ acuminata, (Wall.)

XXVIII. *Myrtaceæ.*

66. Eugenia jambolana, (Lamb.).
67. „ caryophylliæfolia, (Roxb.).
68. „ operculata, (Roxb.).
69. „ alternifolia, (Wt.).
70. „ Arnottiana, (Wt.).
71. „ calophyllifolia, (Wt.).

72. Eugenia montana, (Wt.).
73. Careya arborea, (Roxb.).
74. Barringtonia acutangula, (Gærtn.).

XXIX. *Melastomaceæ.*

75. Memecylon edule, (Roxb.).

XXX. *Lythraceæ.*

76. Woodfordia floribunda, (Salisb.).
77. Lagerströmia parviflora, (Hk.).

XXXI. *Samydaceæ.*

78. Casearia graveolens, (Dalz.).

XXXII. *Cornaceæ.*

79. Alangium Lamarckii, (Thw.).

XXXIII. *Rubiaceæ.*

80. Adina cordifolia, (Bk. and H. f.).
81. Stephegyne parvifolia, (Bk. and H. f.).
82. Wendlandia tinctoria, (DC.).
83. Gardenia latifolia, (Aiton.).
84. Ixora parviflora, (Vahl.).
85. Plectronia didyma, (Bk. and H. f.).
86. Morinda exserta, (Roxb.).

XXXIV. *Ericaceæ.*

87. Rhododendron arboreum, (Sm.).

XXXV. *Vacciniaceæ.*

88. Vaccinium Leschenaultii, (Wt.).

XXXVI. *Myrsineæ.*

89. Myrsine capitellata, (Wall.).
90. Embelia robusta, (Roxb.).

XXXVII. *Sapotaceæ.*

91. Bassia latifolia, (Roxb.).
92. Sideroxylon tomentosum, (Roxb.).
93. Mimusops indica, (A. DC.).

XXXVIII. *Ebenaceæ.*

94. Diospyros melanoxylon, (Roxb.).
95. ,, sylvatica, (Roxb.).
96. ,, chloroxylon, (Roxb.).
97. ,, embryopteris, (Pers.).

XXXIX. *Oleaceæ.*

98. Nyctanthes arbor-tristis, (L.).
99. Schrebera swietenioides, (Roxb.).

XL. *Apocyneæ.*

100. Alstonia scholaris, (R. Br.).
101. Holarrhena antidysenterica, (Wall.).

XLI. *Loganiaceæ.*

102. Strychnos nux-vomica, (L.).
103. ,, potatorum, (L. f.).

XLII. *Boragineæ.*

104. Cordia myxa, (L.).

XLIII. *Bignoniaceæ.*

105. Stereospermum suaveolens, (DC.).

XLIV. *Verbenaceæ.*

106. Tectona grandis, (L. f.).
107. Gmelina arborea, (Roxb.).
108. Callicarpa arborea, (Roxb.).
109. Premna tomentosa, (Willd.).
110. Vitex pubescens, (Vahl.)
111. ,, altissima, (L.).

XLV. *Lauraceæ.*

112. Cinnamomum zeylanicum, (Breyn.).
113. Tetranthera monopetala, (Roxb.).
114. Beilschmedia Roxburghiana, (Nees).

XLVI. *Urticaceæ.*

115. Artocarpus integrifolia, (L.).
116. Ficus bengalensis, (L.).
117. „ religiosa, (L.).
118. „ glomerata, (Roxb.).
119. „ hispida, (L. f.).
120. Streblus asper, (Lour.).
121. Ulmus integrifolia, (Roxb.).
122. Sponia orientalis, (Planch.).

XLVII. *Euphorbiaceæ.*

123. Phyllanthus emblica, (L.).
124. Antidesma Ghæsembilla, (Gærtn.).
125. Lebedieropsis orbicularis, (Müll.).
126. Givotia rottleriformis, (Griff.).
127. Homonoya riparia, (Lour.).
128. Putranjiva Roxburghii, (Wall.).
129. Mallotus philippinensis, (Müll.).
130. Briedelia retusa, (Spr.).
131. Gelonium lanceolatum, (Willd.).
132. Daphniphyllum glaucescens, (Bl.).

XLVIII. *Salicineæ.*

133. Salix tetrasperma, (Roxb.).

XLIX. *Cycadaceæ.*

134. Cycas Beddomei, (Dyer.).

L. *Gramineæ.*

135. Bambusa arundinacea, (Retz.).
136. Dendrocalamus strictus, (Nees.).

LOAN COLLECTION.

Exhibited by COLONEL JAMES MICHAEL, C.S.I., *Bangor Lodge, Ascot, Berks.*

The following Sporting Trophies, Heads of Forest Animals, etc., collected by him on loan for the Exhibition.

1. *Lent by* HER MAJESTY THE QUEEN.
   Heads of Red Deer from Windsor and Balmoral.
2. *Lent by* H.R.H. THE PRINCE OF WALES, K.G.
   Two Bull Elands (Boselaphus oreas).
   Two Reedbucks (Eleotragus villosus).
   Two Koodoo (Strepsiceros kudu).
   Two Gemsboks (Oryx gazella).
   Two Heads ( ).
   Two Kobus Maria (Damalis korrigum).
   One Sassaby (Acronotus lunatus).
   Two Hartebeests (Acronotus Caama).
   Two Sable Antelopes (Aegocerus niger).
   Two Waterbucks (Kolus ellipsiprymnus).
   One Boshbok (Tragelaphus sylvaticus).
   Two Buffaloes (Bubalus caffer).
   Two Impalla (Æpyceros melampus).
   One Double Rhinoceros Horn.
   Two pair of African Boar Tusks.
   Two Wapiti Heads (Cervus canadensis).
   One Elephant Tusk from the White Nile.
   One Moose Deer Head (Alces palmatus).
   Two Red Deer (Mar Forest).
   Four other Red Deer Heads.
   One Picture of a Tiger Hunt, with Portraits of H.R.H. and Suite.
3. *Lent by* H.R.H. THE DUKE OF EDINBURGH, K.G.
   Three Heads of Thuringian Red Deer.
   One Head of Balmoral Red Deer.
   One Head of Balmoral Red Deer, with curious brow antler.
   One Ceylon Buffalo (Bubalus buffelus).
   One Indian Buffalo (Bubalus Arni).
   One African Pig (Wart Hog).
   Two Black Buck Antelopes (Cervicapra bezoartica).